DVORAK'S 14 POSTULATES OF COMPUTING•PAGE 250

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MICROTIMES

SPECIAL

3rd Annual MicroTimes Venture Capital Issue

HIGH-TECH VENTURES: FINANCEABILITY

"By 1990, a well-run computer systems firm required about $50 million before it achieved profitability. Having $50 million to spend does not guarantee success, however, because many companies spent that amount (or more) but still failed."

SEE PAGE 70

VENTURE CAPITALISTS DISCUSS NEW STRATEGIES FOR EMERGING MARKETS

Cowsy Wadia, Technology Funding: "It's going to be tougher to make more successful companies, but the whole process is getting mature. Maybe there are fewer opportunities because of that, but at least people are making fewer mistakes..."

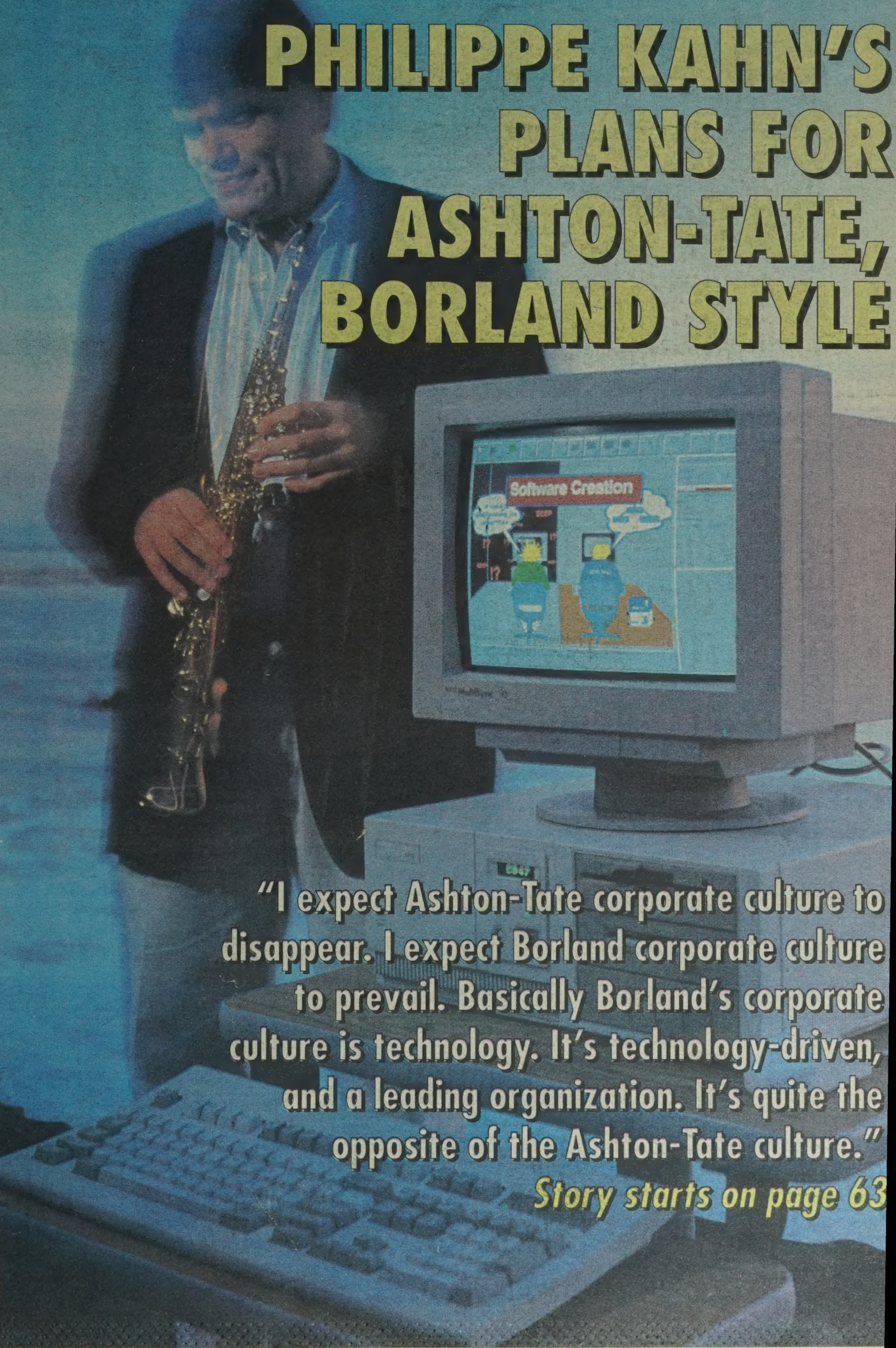
SEE PAGE 83

ALTERNATE VIEWS FROM GUY KAWASAKI

"Not even evangelism can work on most venture capitalists. Venture capitalists want to change their wallets. Evangelists want to change the world."

SEE PAGE 108

PHILIPPE KAHN'S PLANS FOR ASHTON-TATE, BORLAND STYLE



"I expect Ashton-Tate corporate culture to disappear. I expect Borland corporate culture to prevail. Basically Borland's corporate culture is technology. It's technology-driven, and a leading organization. It's quite the opposite of the Ashton-Tate culture."

Story starts on page 63

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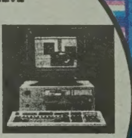

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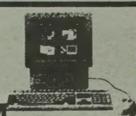

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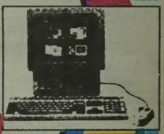

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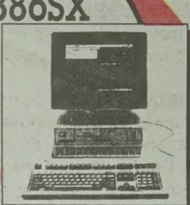

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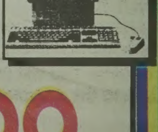

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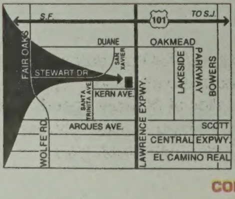

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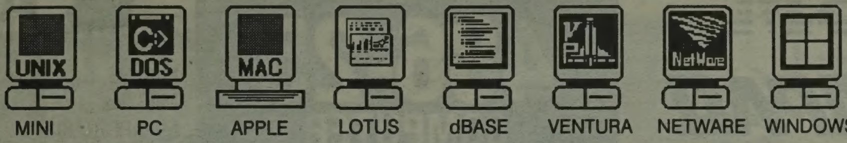

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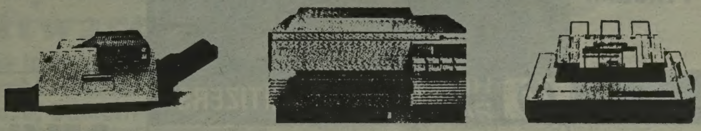

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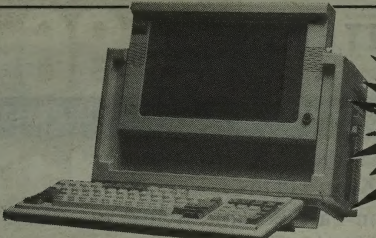

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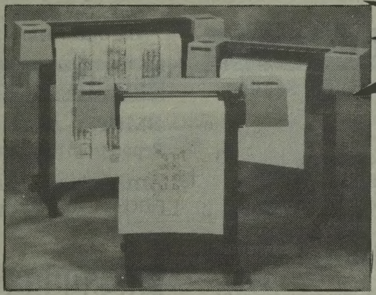

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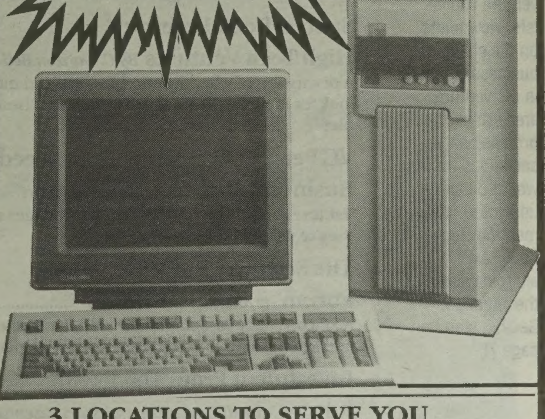

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A NOTE FROM THE EDITORS

Appearances notwithstanding, Philippe Kahn is not making his MTV debut; the saxophone sort of insinuated itself into what, with another company, might have been just another product-oriented photo shoot. But Borland's mathematician/musician founder has plenty to say on the subject of the future of software giant Ashton-Tate now that the two companies have agreed to merge. Story starts on page 63.

In other news, under the heading of VC '91, we bring you a collection of articles of interest to the entrepreneur and/or investor in high-tech industry, from financeability criteria and venture capitalists' viewpoints on the changing business climate in the venture arena to useful professional associations for the would-be start-up. Not to mention Guy Kawasaki's alternate views of the situation. Section starts on page 70.

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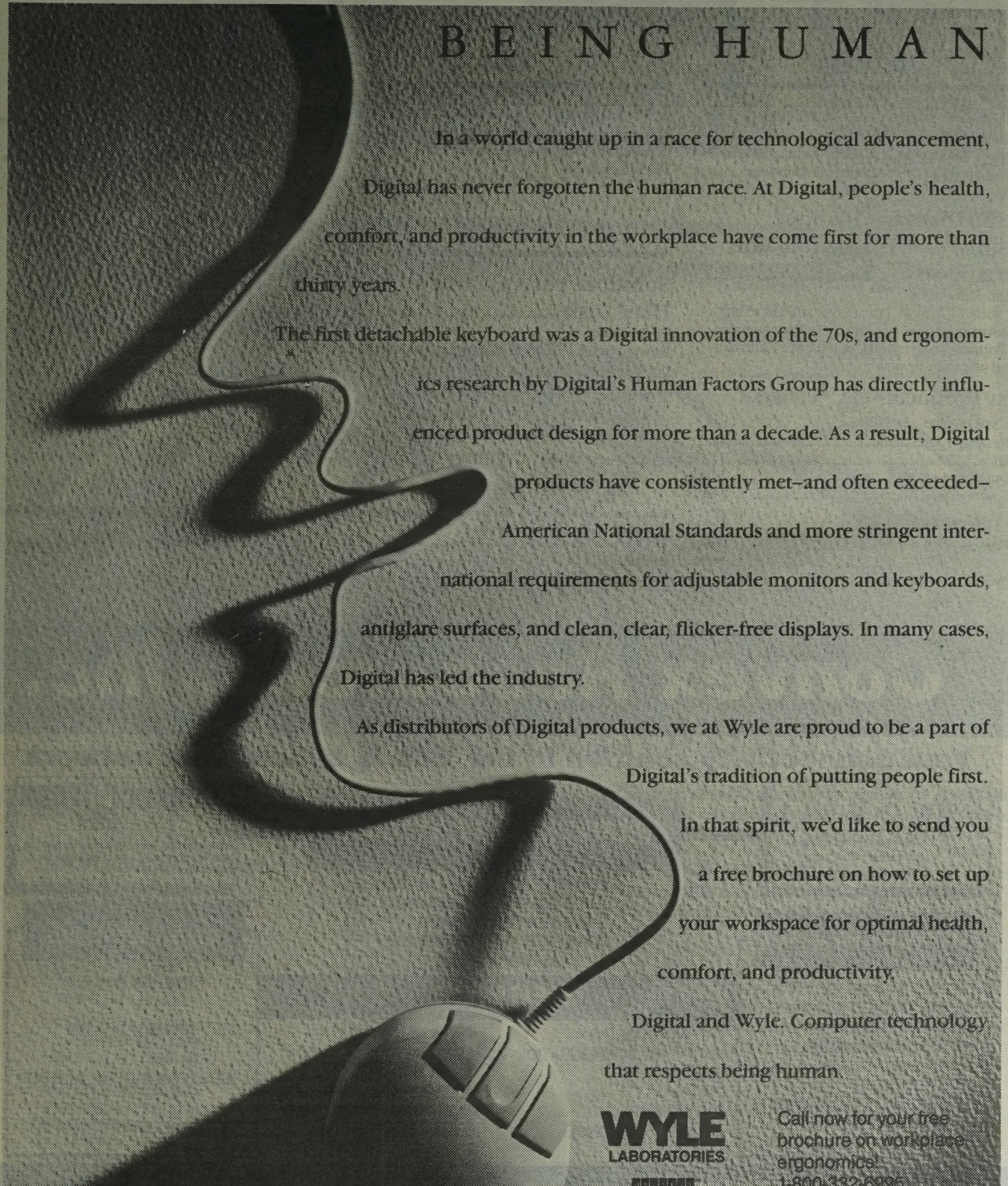

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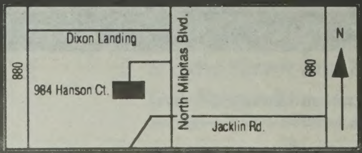

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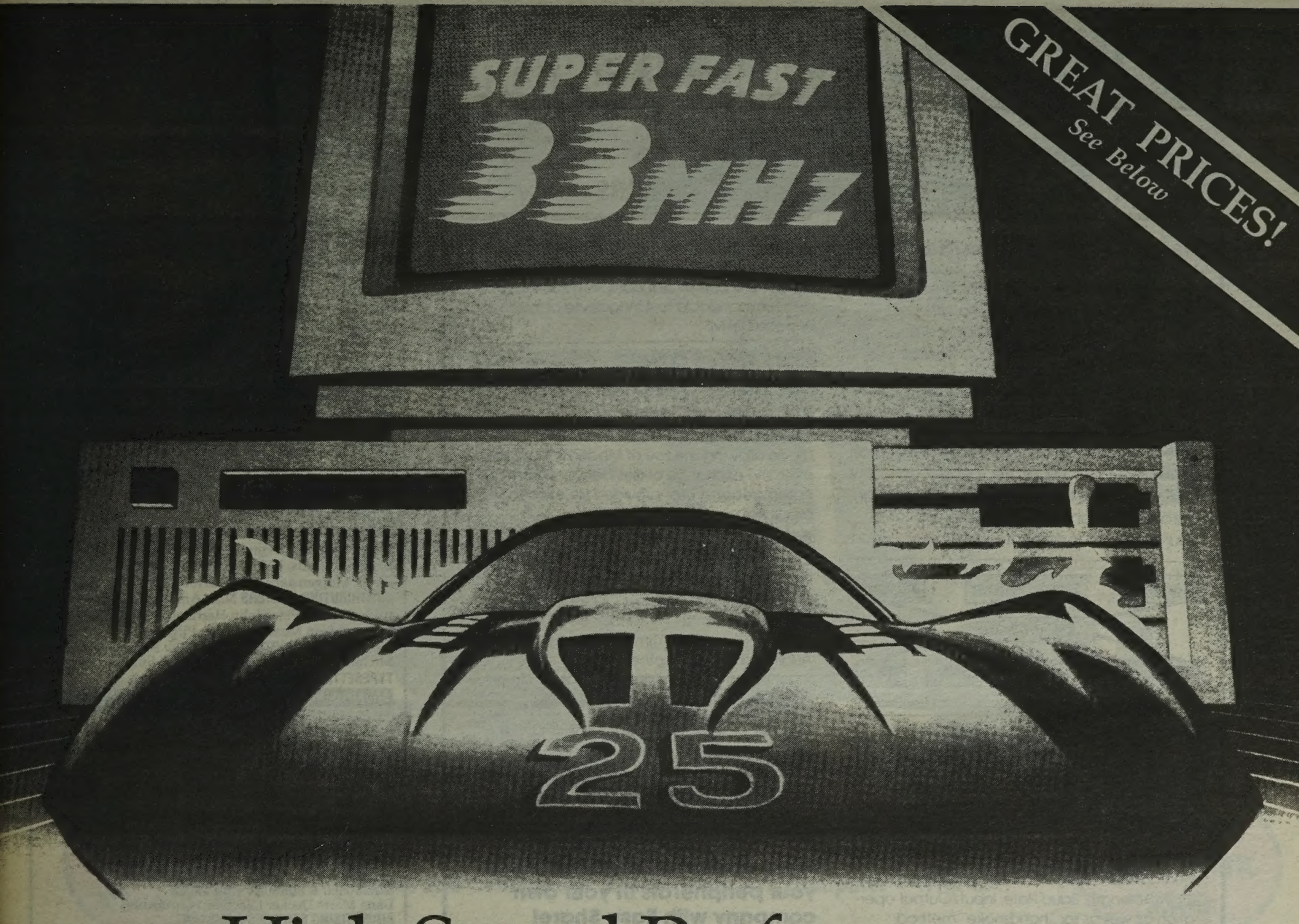

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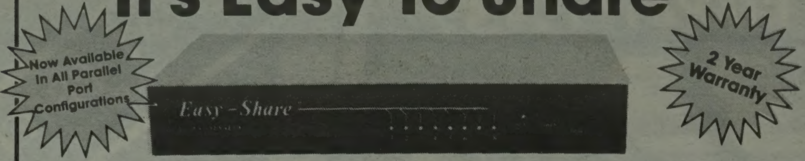

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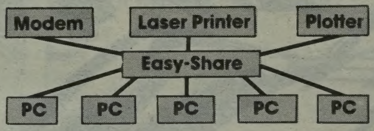

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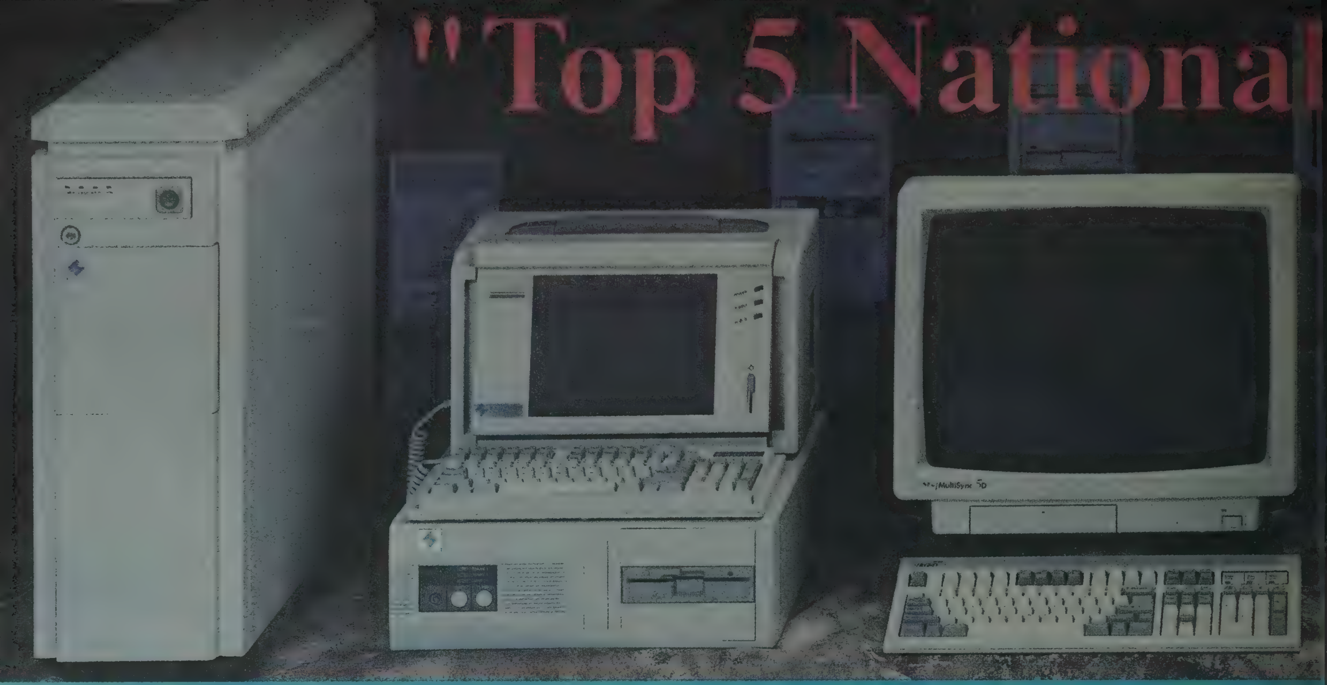

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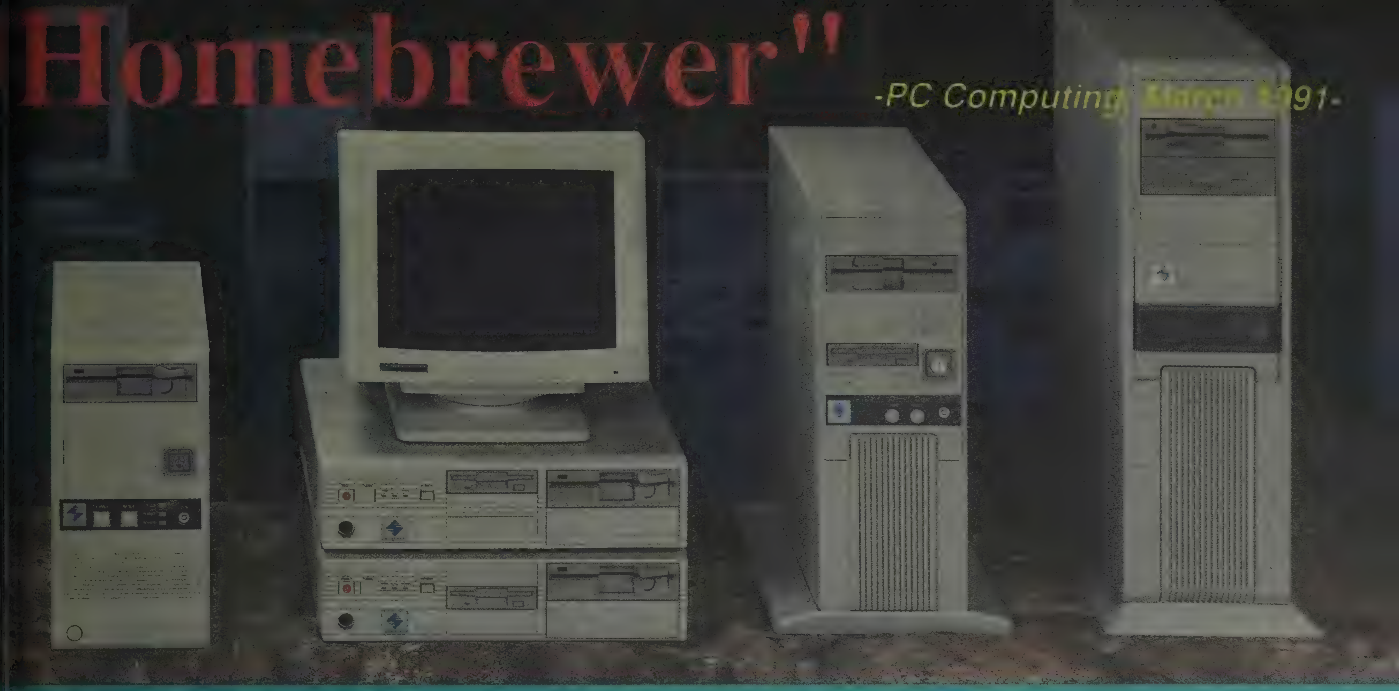
-PC Computing, March 1991-



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Letters

WRITERS DEBATE DOS

This month's letters column is a little unusual in that it consists of correspondence between two of our writers with radically different viewpoints. If anyone out there thinks of MicroTimes *as an editorial monolith, read on...*

—eds.

Date: Thu, 1 Aug 91 23:35:39 pdt
From: jroe (Lenny Bailes)
To: barlow, microx
Subject: lttr to editor

After reading the latest *MicroTimes*, I felt like I had to write this. Hope it will be received in the spirit I intended it:

Dear MicroTimes:
John Barlow is a good writer with a good cause in his popularization of NeXT computing, but I find a flaw in his vision—his consistent contempt for PC users. Barlow's characterization of "Lotus servers for technopeasants" and "benighted DOS users" speaks of his resentment for a scenario that is rapidly becoming outdated.

At one time, the concept of the Macintosh as a liberating "human" element in a world dominated by grey-suited IBM salesmen had more meaning than it does today. As far as currying influence with large corporations vs. individual initiative and grassroots computing, the lines are becoming blurred.

Barlow may still prefer the Mac or the NeXT, and have good personal reasons for doing so, but his otherwise enlightened commentary seems to lack awareness that DOS machines (as well as the uses people put them to) have changed since 1985. On the question of range and power of software, some people might say that Word for Windows does everything that Mac Word does, with more user options and a more powerful user programming language. Corel Systems' CorelDRAW has been rated at least as highly as Adobe Illustrator or Aldus FreeHand in tests conducted by national magazines.

The Macintosh may arguably have a more pleasing interface; the coordination of the mouse with the screen may be smoother. But the PC is not just an accounting tool that serves the financial community.

And for those who seek freedom of expression in the electronic frontier, a $500 PC may be a more viable alternative than a $2000 Mac. (And PC telecommunications programs now include mouse-driven menus, scroll bars for text, and clipboards for cutting and pasting messages.)

Sincerely,
Lenny Bailes

& From: apple!eff.org!barlow
Date: Wed, 7 Aug 1991 10:17:46 -0500
To: uunet!decwrl!apple.com!well!jroe@world.std.com (Lenny Bailes) Subject: Re: cc of letter to Microx
Cc: microx@well.sf.ca.us

Lenny,
You make a solid point in the democracy of PC pricing, but I will cling to my prejudice against DOS machines. It is something I formed during many years of using one, and I will not dispose of it lightly.

For one thing, even with the dubious boon of Windows, they are still inexcusably opaque and contrary. I mean, to cite but one example, there is something perverse about the fact that "abort, retry, fail" (none of which actually work) is still a part of the DOS interface after ten years. Nor do I regard Windows, which someone called "the Mac interface done in crayon," to be the salvation it's widely regarded as among MIS-oids. Creating a clean program-switching environment with Windows still requires a greater understanding of computer science than I think it ought to.

Barlow:
"Most people use DOS because their employer gives them no choice in the matter, and would gladly switch if given the chance. It is an imposed rather than preferred technology in the vast majority of cases, as is evidenced by the fact that one never hears of people switching from the Mac or the NeXT to DOS, while stories of the converse are extremely common."

The fact remains that most people use DOS because their employer gives them no choice in the matter, and would gladly switch if given the chance. It is an imposed rather than preferred technology in the vast majority of cases, as is evidenced by the fact that one *never* hears of people switching from the Mac or the NeXT to DOS, while stories of the converse are extremely common.

DOS forges the chains of the techno-peasantry. Knowledge Workers of the World, Unite! You have nothing to lose but your C prompts.

****

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INDUSTRY INSIGHT

Making Sense Of The Acquisition Wars

BY PAUL HOFFMAN

HOW THE MICROCOMPUTER INDUSTRY DOES BUSINESS AT THE TOP

Just as people were saying that the IBM-Apple agreement (described here last month) was the "biggest thing to happen to the microcomputer industry," some other major players got into the act. While Apple and IBM's deal was essentially a joint research and trade alliance, the other announcements involved outright purchases (if they pass shareholders' scrutiny). Borland announced it was going to buy Ashton-Tate, and Novell announced its intention to buy Digital Research. Pundits got tired of saying how important each event was, since it was clear that they didn't know what would happen next either.

BORLAND BUYS ASHTON-TATE

To many, Borland's purchase of Ashton-Tate is more bizarre than the Apple-IBM agreement. In essence, Borland will take over the entire Ashton-Tate empire, continuing to sell all its products and support its current customers.

However, any Borland customer knows that Borland has a tendency to drop products that don't live up to high sales demands, and many of Ashton-Tate's smaller products—such as its Macintosh line and possibly even the Multimate word processor—may be killed or spun out to small companies.

By and large, what Borland cares most about is the Ashton-Tate name, the installed base for the dBASE line, and the programmers. For those, Borland's president Philippe Kahn is paying a high price: about $440 million, about twice Ashton-Tate's 1990 sales. Although that number may seem reasonable, it should be noted that Ashton-Tate has been losing money fairly regularly despite its high sales and the fact that it owns about half of the standalone database management system market. Kahn will have to dramatically reduce the cost per sale of the Ashton-Tate products in order to prevent the purchase from dragging down Borland's excellent earnings.

If Borland had simply wanted a solid, proven product, it could have bought market leader Fox Software, whose recently released FoxBase v2 runs circles around dBASE IV.

One significant reason Borland bought Ashton-Tate had to be the latter's prestige and its large established corporate user base. In the past few years, Ashton-Tate has become a follower instead of a leader in the database field. Further, many of the dBASE clones available are much better packages than dBASE IV. If Borland had simply wanted a solid, proven product, it could have bought market leader Fox Software, whose recently released FoxBase v2 runs circles around dBASE IV. Instead, Kahn was buying a name, a sales force (which he is sure to shake up), some excellent programmers, a solid database server technology that Ashton-Tate had just bought, a big-name product with a long history, and many rich customers.

There's a significant risk that buying the Ashton-Tate customer list and database technology will put a financial drain on Borland. Kahn's gamble is that linking dBASE products with Borland's successful object-oriented software will help him win customers from Oracle and other UNIX-intensive database companies. Corporations have not embraced object-oriented systems to any significant extent, but the combination of good objects and a known product name may change that. If it doesn't, you can expect to see hard times in Scotts Valley.

Kahn's gamble is that linking dBASE products with Borland's successful object-oriented software will help him win customers from Oracle and other UNIX-intensive database companies.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) and MCI Mail (264-3171). He also writes popular microcomputer books.

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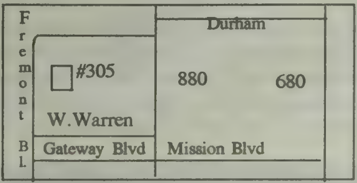

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NOVELL BUYS DIGITAL RESEARCH

Borland's acquisition of Ashton-Tate involved two companies within the same marketing category; Novell's purchase of Digital Research did not.

By buying Digital Research, Novell can bypass an increasingly petulant Microsoft altogether and offer its own MS-DOS-compatible operating system with its networking software. This opens up a wide range of possibilities for Novell, all of which could spell trouble for both Microsoft and other networking companies. Novell is offering about $80 million, twice Digital Research's 1990 sales.

Novell owns the lion's share of the networking market but, to date, has yet to make an easy-to-install or easy-to-use system. For years, smaller, scrappier companies like Banyan and Artisoft have been getting awards for better software than Novell, but Novell continues to dominate the market based on name recognition and excellent support from third parties (much like Ashton-Tate).

The stumbling block for all network companies is getting their software to work seamlessly with popular operating systems, particularly MS-DOS. With Novell owning far and away the best MS-DOS clone, it can design its own precise and efficient hooks into DR DOS and thus avoid the many problems with MS-DOS altogether.

Digital Research's sales are miniscule compared to Novell's; Novell will not require that DRI produce much direct revenue if it can produce something much more valuable: better software. Although no one has ever accused Novell of getting wild with software, this purchase gives the networking giant such an opportunity. Instead of selling the improved (that is, Novellized) DR DOS through standard retail channels, as Digital Research does now, imagine the benefits to Novell if it used some alternate marketing strategies:

•What if they sold a two-node, client-to-client network version of DR DOS for $50? Of course, Novell would make very little money on such a package, but think about the good will and name recognition that Novell would garner among customers that have so far been afraid to get on a network.

Of course, the $50 version would also have all the hooks necessary to work with the more expensive client-server software that satisfied customers could buy from Novell...and no one else.

•Novell could bulk price the Novellized DR DOS so low that more than half of the PC clones purchased would come with DR DOS, instead of nothing or MS-DOS. Hell, Novell might even let Compaq give away a Compaq-specific version of it for free. All of a sudden, millions of copies of a Novell-friendly operating system are on all the new computers throughout the world. And Novell's name would flash on the screen every time a user turned on the computer.

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Novell will most likely do neither of these things, being the conservative company it is. However, it's indicated that it will probably bundle the new DR DOS with the network software in the future, and possibly combine the two packages. Even this fairly boring scenario opens up a new twist in the IBM-Microsoft breakup, since IBM has reselling rights to all Novell software, including the new DR DOS.

Given that Novell has excellent relations with IBM, given that IBM has abysmally bad relations with Microsoft, and given that the president of Digital Research worked at IBM for more than twenty years, it is fairly easy to imagine a day when DR DOS (again, with Novell-sponsored networking hooks) comes

Continued on page 198

Technology News From Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

➤Canon will introduce a Japanese version of Hewlett-Packard's New Wave program in September. New Wave, which runs under Windows 3.0, is catching on in Japan, but customers are having Windows problems there that don't exist in the US. Some Windows programs will only run on some brands of machines, so customers are having to choose what machines they need for particular programs. Canon will make sure that all New Wave programs run the same on all machines.

➤NTT is designing an electronic signature identification system for FAX machines and PC networks. The system allows users to sign their names and register their signatures, which are then put into plastic cards with integrated circuits. The cards would "sign" forms in about .2 second.

➤Hitachi has used artificial intelligence to develop a system that allows for "modeless" entry of Japanese characters from the keyboard. The software uses context-checking and a user's previous choices to decide whether to input characters in their pictographic or phonetic forms. Hitachi will start including this software in systems soon and says that it will not affect their prices or speed.

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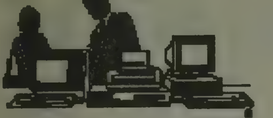

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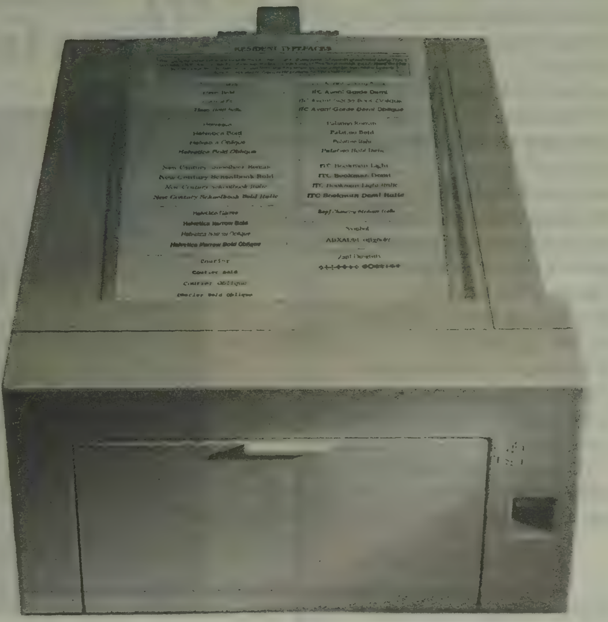

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NEC Silentwriter II Model 90	213	Minolta	44	Yes	$209	$1595
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Wilco supplies affordable, high performance printer sharing systems including models that plug right into HP LaserJet II, IID, III, IIID and the new HP LaserJet IIISi printers. As many as fifteen computers can be connected to a single printer! Wilco also offers models for sharing any two printers or even plotters. Any combination of computers such as IBM PC compatibles, Macintoshes, terminals, minicomputers and LAN print servers can take full advantage of these and other powerful products from Wilco. Cabling installation service available.

For further information, **contact Wilco at 408-436-3993.**

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JetFax gives users of enormously popular HP Laser printers an extremely inexpensive way to get incoming laser printer-based, plain paper fax documents...and, transmitting faxes is a breeze. Price is roughly one-fifth to one-tenth the cost of laser-based fax units.

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New LaserCard Si connects any combination of PCs, Macs, minis, terminals and LAN servers to an HP LaserJet IIISi

SAN JOSE, California -- Wilco AMS Inc., a supplier of workgroup laser printer systems, recently announced the LaserCard Si family of "plug-in" printer sharing systems.

Up to fourteen serial ports utilize four wire, telephone-style modular cables providing an easy-to-connect and low-cost cabling method.

LaserCard Si (LC15Si)

Cable lengths to 1000 feet are supported. An IBM PC program, LASER.EXE increases serial speeds to 115.2KBaud, six to twelve times faster than typical serial connections. A high speed parallel port is included for connection of a nearby PC or network server.

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Dandy Data Deeds To Do

And Some To Avoid

BY JIM WARREN

This column concerns tomorrow's technologies—and their impacts.

DAT DATA & MELODY

Digital *audio* tape — 4mm DAT — uses what looks like tiny video tape cassettes. Their recording technology couples the helical-scan technique of video tape with digital recording to produce audio quality equivalent to compact discs.

REALIZABLE FANTASIES

DAT *data* recording in the same 4mm DAT form can provide reliable backup and archiving for computer files, with gigabyte capacity on a single $15–$20 tape.

Audio DAT uses a standard recording protocol. Most data DAT also uses a standardized format—except for a few soon-to-die proprietary eccentrics.

Unsurprisingly, the recording format for DAT data is not the same as the one for DAT audio. *Surprisingly*, DAT data units don't record or play back DAT audio, and vice versa. So—make megabucks by offering a reliable data-DAT machine (like ARDAT's Python) that also includes circuitry for audio-DAT.

CRAMMING ACROSS PLATFORMS

PKware's PKzip is perhaps the most popular file-cruncher for PCs. StuffIt is the same for Macs. PCs and Macs read and write each other's diskettes and do robust file exchange—*if* files aren't compressed. But there don't seem to be Mac and PC utilities that will unpack each other's packed files.

So the question is: Will the PK and StuffIt folks be the first to offer that needed capability—or will some magnificent new hacker do it first?

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HOW TECH SUPPORT LINES SHOULD OPERATE

Dantz Development in Berkeley has a delightful telephone support approach, which I discovered when exploring Retrospect, their potent backup and archiving Mac program (the best such system I've ever used). When you call, you either get a human within a few rings, or a message requesting your name and phone number and assuring you that they would respond to calls in the order received.

Neat!—you don't wait on the phone. You don't run up phone bills while suckin' your thumb. And when you talk with them, neither you nor they feel the pressure of knowing other callers are on hold.

On their end, staff take whatever time is needed with a customer, rather than rushing each one, so others don't wait too long. Further, they avoid the higher cost of an 800 number—that "free" service paid for by customers when they buy products having 800 support lines.

If companies insist that you wait—and wait and wait and wait—Microsoft illustrates one of the more innovative approaches to hanging you on hold. Once you finally work your way through the labyrinth of touch-tone commands and enter the wait-queue, periodically a melodious human voice gives info about number of callers and estimated wait time—along with various (unsolicited) product information. That way, you at least have an idea whether you only have time for a coffee break, or for a full luncheon.

THE MOST DANGEROUS VIRUS

One of the most destructive viruses imaginable has been created in New Jersey. It will be lethal to American businesses and software development, unless it is destroyed—and kept from infecting other states.

In June, the New Jersey State Assembly passed legislation to license and regulate all "software designers," and establish a State Board of Software Designers.

An industry rag reported that according to NJ Assemblywoman Barbara Kalik, the bill's purpose was to "protect consumers from unscrupulous developers." It's unclear whether she's working for foreign lobbyists intent on destroying American innovation, or merely for special interests desiring to suppress competitors and start-ups.

Copyright © 1991 by Jim Warren, 345 Swett Rd., Woodside CA 94062. All rights reserved. *Jim Warren founded* InfoWorld, *the DataCast proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS' "Computer Chronicles," founding editor of* Dr. Dobb's Journal, *and has chaired various computer professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics.*

He also organized and Chaired the recent First Conference on Computers, Freedom & Privacy, sponsored by a dozen nonprofit and industry organizations.

One need only look at the record of state licensing boards for lawyers, real estate brokers, building contractors, teachers, physicians, beauticians, etc., to realize that (a) they immediately become dominated by those whom they are supposed to regulate; (b) they primarily provide job security and protection for those they regulate; (c) they assure that taxpayers and consumers pay more for less; and (d) they provide a façade of protection with virtually none of the real protection that was their theoretical justification.

If legislators really want to protect consumers, they could establish a public-access database where customers (and programmers) could candidly report and review their experiences with products and vendors (and clients)—good and bad. Or they could legislate penalties for bureaucrats who fail to enforce existing consumer protection and fraud laws.

With luck, this ignorance-based, posturing-politician's legislative lunacy will die in the New Jersey Senate. If not, their political infection will guarantee massive competitive advantage to technologists and computer-using businesses in states—and nations—without such software suppression and bureaucracy-destroyed innovation.

The only software designers' law that politicians should pass is one prohibiting technologically incompetent politicians from passing software designers' laws.

O' course, New Jersey is where a guy was recently fined for fixing a broken radiator hose on a Sunday—in Prospect Park, which prohibits "work and play on Sundays."

MALLEABLE MICROWAVES

The screech-when-done of microwave ovens should be under user control. One should be able to turn it off—or switch it to a melodious chime, rather than that teeth-grinding squeal. Or have it continuously blink its light, rather than have an auditory signal—especially handy for the hearing impaired.

DEAF AWARENESS

Using that to slip in a realizable fantasy: Several airports appear to have bought and boarded up entire subdivisions under flight paths—presumably to overcome endless lawsuits about jet noise. (If it was for safety, they would have removed the homes; not just boarded 'em up.)

Why not offer those perfectly good homes—for minimal cost, if any—to folks who are severely hearing-impaired, who are willing to accept the vibration in exchange for a nearly free home? (idea from Nancy Christian)

Of course, they would include a bullet-proof contract and title encumbrance prohibiting litigation against the airport by those who take advantage of such low/no-cost housing. It would provide affordable housing, return property to the tax rolls, and reduce airport operators' patrol requirements.

SHARE WHERE?
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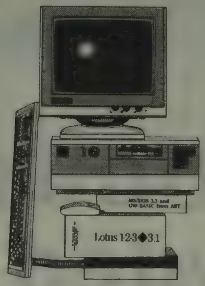
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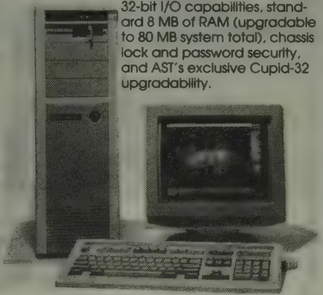

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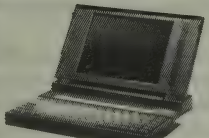

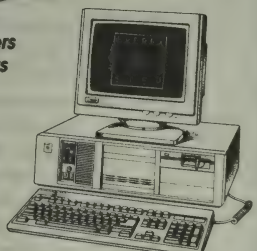

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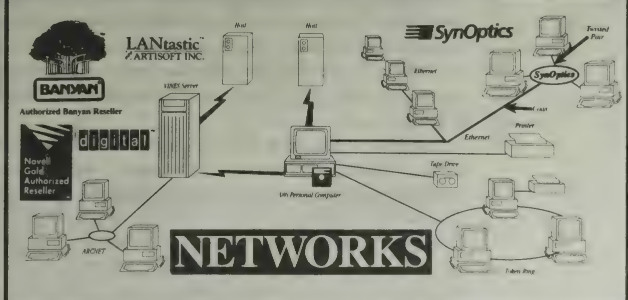
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Solutions For A Crowded Hard Disk

The Compression Utility Stacker Gives You More Space On Your Hard Disk And Can Add New Life To Your Older Portable

BY ED KAHN

Early models of portable computers often came with 10MB hard disks, while newer notebooks and the larger portables now routinely come with medium- to large-sized fixed disks. I know individuals who have traded in their older model portables for the purpose of getting a computer with a larger hard disk. But no matter how large your hard disk is, in time, it will become filled with programs and data.

Data compression utilities offer a software solution to hard disks quickly filling up. I recently tested Stacker ($149) on an older 10MB portable. After installation, the computer showed more than 18MB of available hard disk space.

The technology is pretty simple. There are two versions of Stacker, which use the same software. The one I tested, particularly suitable for portables, is a software-only product that you install on the hard disk. The other, a coprocessor model ($229), includes a card that fits into the slot of a PC clone. In addition to compressing the data, it makes things run a bit faster.

After backing up the hard disk—just in case—you install Stacker by inserting the disk in the floppy drive and typing "install." The program does the rest. It does, however, require that you have a little over a megabyte of free space to begin the operation. Once the installation begins, Stacker creates a new drive designation in which it stores essential information and then creates a new C: drive onto which it copies all of your files in compressed format. A few of the files are reset so the computer will boot up properly. The computer opens to the C: drive and operates completely transparently.

If you switch to the D: drive, you will see some uncompressed files, including your autoexec.bat file, as well as several other files that the computer uses to boot up. There is an autoexec.bat file in C:, but that one is locked and is not where you list commands. Aside from the autoexec.bat file on the D: drive that you control, there is no reason to go there.

If you start with a 20MB drive, you will have 38MB after installing Stacker. I find few drawbacks to this product. While you need to remember that there is a D: drive, there is almost no reason to be bothered by it.

There are, however, a few restrictions. You will no longer be able to use defragmentation programs like Optune, VOPT, or Norton Speed Disk. Stac Electronics says it will include a defragmentation program with the product in the near future. Until then, you can use a backup program and then reload your hard disk to defragment files. This is not a major drawback; those that like to regularly defragment the hard disk can easily accomplish this through a backup and restore operation.

USER'S MANUAL
STACKER
STACKER
STACKER

When I tested Stacker, I was unaware that someone had installed Superlok, a hidden security system, on the computer. This was the source of many problems when Stacker could not reorganize the hard disk. I had to reformat the hard disk to remove Superlok, reinstall Stacker, and reload everything else from the backups. I have subsequently installed Stacker onto other computers and have had no trouble. Stacker will warn you to remove certain kinds of programs before starting the installation process, but was unaware of Superlok, which was a hidden file.

While Superlok caused a lot of extra work, it gave an opportunity to put the technical support staff of Stacker through its paces. They performed well. I phoned, in a panic, when I first ran into trouble. The technical staff stayed with me until they had figured out the problem and talked me through the solution. The company has an 800 number for technical support. In addition, it has a bulletin board from which you can get information, ask questions, and download software. In the course of solving the problem, the technical support staff recommended that I run a piece of software they have on the bulletin board. It was simple to log onto the board and download the recommended file.

I give the company and its product high marks. If you are struggling with a bulging hard disk, think about installing Stacker rather than buying a new computer. ■

Continued on page 204

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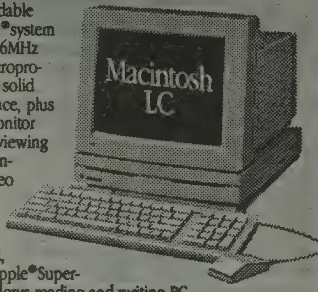

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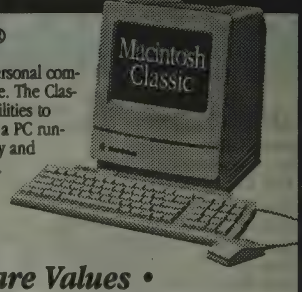

The Macintosh® Classic® is the ideal entry-level personal computer and the affordable choice for home or office. The Classic® sports an all-in-one design and built-in capabilities to make it more powerful and more affordable than a PC running Windows. With the Classic®, you save money and get everything you need from an office computer.

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*While supplies last.

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Includes 3MB RAM, 40MB hard drive and mouse

The IIsi features built-in sound and color capabilities, and is System 7.0 capable. Combine that with a fast and expandable 20MHz 68030 processor to make it the powerful computer that everyone can afford. An excellent choice for education or business use.

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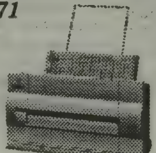
Cash price only Free cable

save $171



The StyleWriter® offers convenient personal printing in a space-saving compact design—without giving up the outstanding, laser-quality results you need. The two manual feed slots even allow you to print envelopes.

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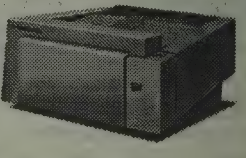

This outstanding personal laser printer offers near typeset quality results, plus it has responsive performance from its high speed serial interface and its four PPM engine.

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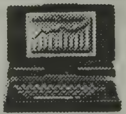

This PC features all the power you need—including the power to take it with you. Its 12MHz 286 processor, large 640 x 400 display and comfortable display enhance your comfort and productivity. All this at an affordable price makes this a tiny notebook with no room for compromise!

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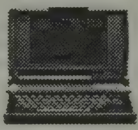
Includes 1MB RAM, 40MB disk, keyboard and floppy drive

Toshiba T2000SX



The 16MHz, 80386SX based T2000SX is a tiny portable that packs major punch. It is expandable to 9MB RAM and features an IBM compatible VGA display. So don't let its dimunitive size fool you. When it comes to power, this PC stands tall.

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Includes 1MB RAM, 40MB disk, ergonomic keyboard and floppy drive

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The T3200SX is the portable computer with everything you'll need down the road, including six expansion slots and five interface ports. That, plus the 16MHz 386SX processor and VGA display make it more powerful than many desktop computers. See Toshiba's most internally expandable portable today!

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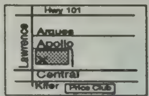
Includes 1MB RAM, 40MB disk, expansion slots, keyboard and floppy drive



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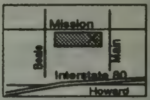

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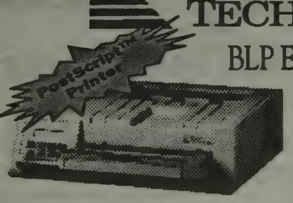

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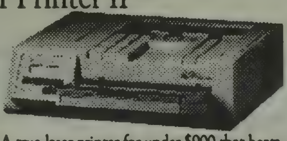

A true laser printer for under $900 that beats an inkjet in speed and quality. And the PLP II™ is the most affordable Macintosh® compatible laser printer available. In other words, its a lot more printer for less.

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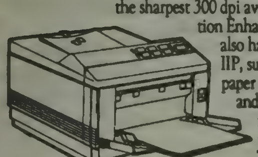
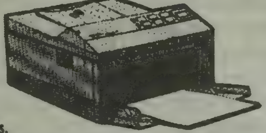


This amazing and affordable personal printer is the sharpest 300 dpi available because of Resolution Enhancement Technology. It also has all the features of the IIP, such as small footprint, four paper sizes, plus envelopes, labels and transparencies. Available for PCs or for the Macintosh®, with built-in AppleTalk® and PostScript®

HP LaserJet IIP Printer

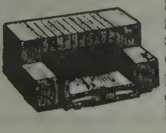
This affordable 300 dpi laser printer boasts a small footprint and a 4 ppm engine. It can print on four paper sizes, plus envelopes, labels and transparencies. Available for PCs or for the Macintosh®, with built-in AppleTalk® and PostScript®



$799

HP DeskWriter Printer

$489



This high quality 300 dpi resolution personal printer gives laser quality text and graphics for any Macintosh® system. It boasts AppleTalk® capability, up to 2 ppm printing, whisper quiet operation and a 100 sheet built-on paper feeder.

Watch for the new HP DeskWriter C Printer

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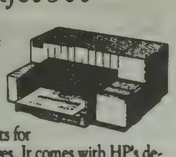
HP DeskJet 500

This high quality 300 dpi personal printer gives the highest quality output at the lowest possible price. It boasts water-resistant ink, a 100 sheet paper feeder, and expansion slots for memory and font cartridges. It comes with HP's dependability, and a three year warranty.



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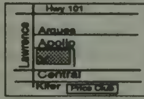

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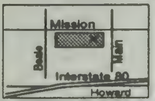

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Mactivity Report

Plus A Brief Visit To The Do-It-Yourself Server

BY [redacted]
YACCO

Last month I promised to try to finish building the server I started working on back in 1952 or so. I had really intended to finish.

What happened instead is that I went to Mactivity '91. It's a new conference put on by the Winehouse Computer Co., and they really did a professional job. It is by far the best small show I've attended, even though it is a first effort! So I want to spend a few words on what I saw. There's is also more about that server, of course, for those among you who are following its development to the bitter end.

MACTIVITY '91

Winehouse did a spectacular job of helping the third parties in attendance to prepare for the exhibition. There were some significant product introductions, and nearly everyone seemed to have an announcement or at least a press kit. That kind of organization is unusual for a small show, and especially so for a Mac conference. I think they did a better job at it than the Macworld Expo.

Among the products debuting was WordPerfect Office for the Mac, an impressive scheduling program with a genuine Mac interface. Who says they can't program this GUI stuff in Orem?

Also making one of its first appearances was a heavy-duty revision of Aperture, the engine underlying the Network and Resource Manager I've discussed here. Version 2.0 makes it easier to create drawings by dynamically showing you their dimensions as you draw. It will also allow workgroup access through a server. Data handling/reporting has been bolstered by several improvements, including the ability to update databases in batch mode.

Even Sitka was there, promising PenTOPS for NCR's 3125 notepad computer, a PenPoint platform.

Sophisticated network monitors, which have been underrepresented on the Macintosh platform, have suddenly appeared with a vengeance. Farallon finally released its network-manager's toolkit: PhoneNET Manager's Pack, just half a year or so after it was originally scheduled.

Neon was there with RouterCheck (announced earlier in July). Neon claims it's the first tool for monitoring and managing multivendor AppleTalk routers. It gathers and reports information from any Mac on an internet.

The AG Group announced new packet manipulation features for its EtherPeek Ethernet protocol analyzer and network monitor. It was also showing LocalPeek, a LocalTalk analyzer and monitor which shipped in February, and Net Watchman which shipped in May. Net Watchman logs events and sounds an alarm whenever dynamic changes disrupt network services—even across bridges and gateways.

InterCon was showing its WatchTower network management software, which lets a Mac gather and report information on failures, traffic, and performance from any SNMP Agent on a TCP/IP network. InterCon also showed Planet X, a package that remotely controls a Mac client from an X-Window workstation. Think of the possibilities.

On the hardware side, I talked at length with Asante's president and engineering heavyweight Wilson Wong. Wong is bent on becoming a major force in the network-interface controller market. He certainly won't fail for lack of enthusiasm. In pursuit of his goal, he seems to be introducing ethernet products into every possible niche. His latest tactics include putting thin, thick, and twisted-pair support on the same NIC; joining with SuperMac and Radius to put ethernet and video on the same Mac IIsi cards; and cutting his 10T 10BaseT hub (with 12 10BaseT, 1 BNC, and 1 AUI ports) from $1395 to $995.

Shiva announced its Hublet standalone four-port repeater for 10BaseT earlier in the month, but still only had mock-ups to show. This is a nifty product that lets you eliminate lots of long cable runs by concentrating four devices into a single 10BaseT outlet. From there a single twisted pair runs to the main hub or to another Hublet. They can be daisy-chained, and substantially simplify a network by providing several layers of concentration.

Webster was at Mactivity with its MultiPort Gateway, a competitor to the GatorBox and FastPath, but with four LocalTalk ports instead of one. That lets you split your network into four segments and connect them to a server on ethernet. The result is a network at near-LocalTalk prices, with greatly improved response times. Webster was also giving away its free "Guide to the Webster MultiPort Gateway." It's a handy guide to the evolution of AppleTalk networks, and most of the ways you can connect them to Ethernet. They'll give you one if you call, and say you read about it here.

Last, and probably least for now anyway, LA-based TerraNetics made its very first trade show appearance at Mactivity with SafeDeposit 2.0, its automatic backup utility for AppleShare servers. SafeDeposit is so safe because it automatically makes a deposit every time you change or add a file on the server.

SERVER SAGA, CONTINUED: LOW-LEVEL FORMATTING

If your hard disk doesn't come formatted like the CSC drives I mentioned last month, you'll have to do it yourself. For Novell NetWare 2.15 and 2.2, that can mean running and running and running Compsurf. (You may think I'm kidding, but those who've done it know I left out a few "runnings.") Netware 2.2 also has a faster option, Ztest, that you can use if your drive has been adequately tested with an analog tester, you know where the defects are, and no new defects have been added during shipping or installation. Fortunately, those are reasonable assumptions with the drives being manufactured today. However, if you don't have a lot of confidence in your drive, you'll need a surplus of guts, and a deficit of sense, to justify skipping a thorough test.

Unfortunately, there are some large drives that don't conform to the standards required by the NetWare drivers. There are others

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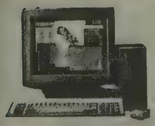

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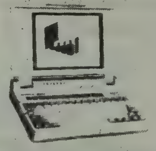

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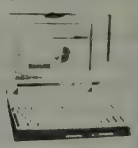

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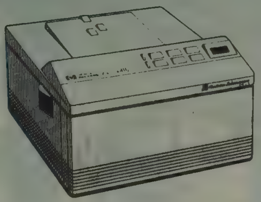

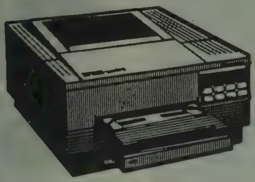

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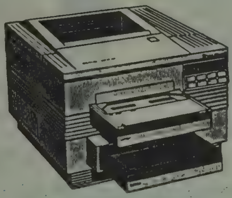

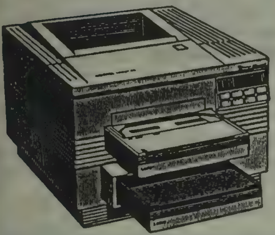

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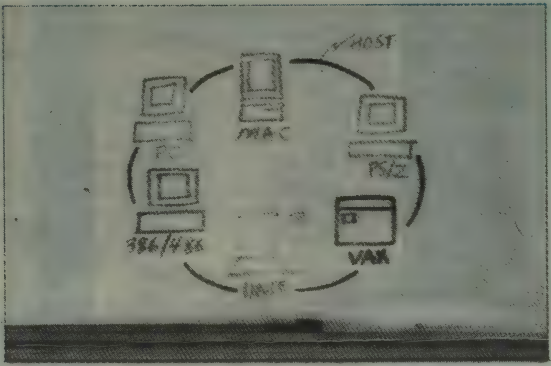

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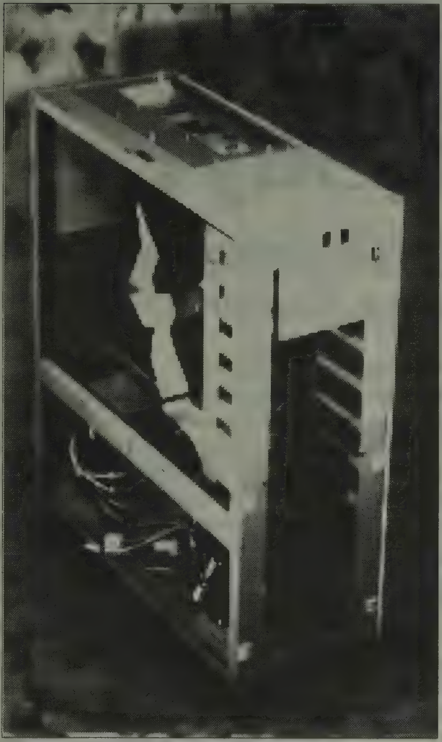

The Songtech SE-AT-29A case with Micronics '486 EISA motherboard, two Teac 4MB floppies, and Corporate Systems Center's rebuilt SCSI hard disk installed.

(notably ESDI drives) that store critical tables on track zero. You can't use Ztest on such a drive because it basically scrubs track zero, just like Compsurf does the entire drive. In these cases, Ontrack's DiskManager-N is the formatting utility for you. The company claims its advanced methods make DiskManager-N a replacement not just for Ztest, but for Compsurf. It includes surface tests, adds the special format information that Netware uses to recognize a Compsurfed drive, and is Novell certified (for 2.15c only, but they recommend it for 2.2 also). A 400MB drive that requires over thirty hours to Compsurf can be done in less than two, they say. It can also get many drives that are not ordinarily Novell compatible to work.

OTHER NEWS

Here's some advance product news from Ontrack: In addition to DiskManager-N and its Net Utils network tools, the company is adding a drive-optimization utility to its product line (scheduled for Fall) that defragments Netware-formatted drives. It's expected to sell for about $400, and will be well worth the price if it improves performance to the extent that DOS defragmentation does. Since NetWare uses a technique called "elevator seeks" to improve its performance, benefits may differ somewhat. ■

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What Do The Numbers Say?

Statistical Analysis With Paradox, Quattro Pro, ParaStat, And Knowledge Seeker

BY BIRRELL WALSH

There are two kinds of statistics software: dedicated high-end packages (often requiring programming) that are used for professional work, and simpler packages that ordinary businesspeople can master for daily use. I spent the spring and summer working with statistical applications of four off-the-shelf packages, and found that with some knowledge you can do a lot on a reasonable budget.

Data Entry And Presentation

PARADOX AND QUATTRO PRO

As a database consultant for a University of California research project, I was not hired to be the project statistician. I was asked to help with the choice and installation of database software for the project.

To my mind, the only practical database software for a DOS system is Paradox from Borland. This was doubly true in this case: The project did not have a lot of money to spend on training staff. They needed a database that an intelligent person could master with time and common sense. Because Borland's Paradox was designed to be easy to learn and use, it met the learning-curve prescription. A member of the office staff was able to learn to operate Paradox for more and more of its full uses. I set up the initial data-entry system, but by the time the project data entry was completed, she had taught herself how to create, modify, and query Paradox databases.

To be of use, a database must be more than easy to learn. It has to be powerful in the second stage, when you want to ask questions of the data. A project can lose its entire budget in consultant costs if every question that is asked of the database calls for a new program.

There is a second cost, which is subtler but just as deadly. If questions are difficult to ask, and if answers come slowly, the "question-answer-question" cycle is impeded. It is not possible to follow up a hunch because each new question takes too much time and effort to answer.

I found that Paradox was at its best in giving fast answers to questions. Paradox allows "Query-by-Example." You get information in most cases by simply checking fields. Since each answer is a new database, you can ask further questions of each result, refining your work as you go.

This ease of questioning gave us two advantages as we developed our project. The person who did data entry was able to check for errors with quick queries of the database during the data entry itself. We were able to find a number of errors before any problems arose. We were also able to turn around our results very quickly. If the project director had a last-minute question—"By the way, how many people are under thirty and have less than five years of education?"—we could have the answer in under a minute from a database of seven thousand records.

Paradox queries don't just ask questions about the database. They are also used to make mass changes. A number of times we used them to correct groups of errors with a single command. People who were born in 1880 and were in fifth grade could all jump a century together, without record-by-record correction.

Paradox allows quick learning and quick questioning, but we found it limited in graphics. Paradox makes simple graphs that a few years ago would have been considered excellent. The standard has moved on, and now presentation demands higher quality than the database alone can provide. Borland has addressed the issue by linking Paradox with its spreadsheet Quattro Pro.

The spreadsheet must be purchased separately, but once you have both packages you can move into Quattro from the Paradox menu. Data can be moved from database to spreadsheet with a few keystrokes. In Quattro, you can use its extraordinary charting capabilities to make magnificent graphic documents.

I was able to turn out, in twenty hours of concentrated work, the tables and graphs which would be the heart of the project's funding proposal for the following year. Those hours were the whole process: query, requery, graphic design, graphic revision, and printing. Using Paradox queries, I developed answer databases from the original data. Those I imported into Quattro and converted into basic graphs. Using Quattro's "Graph Annotation" palette, I was able to add comments to the graph and make changes in style, typeface, and positioning on a WYSIWYG screen. When I was satisfied, I could both print the graph at laser quality, and save the graph with the spreadsheet that supported it. By keeping the spreadsheet-graph pair, I readied myself for any data changes or other modifications that would be necessary later.

The publication cycle for our graphics-from-data became twenty hours of one person's time, rather than weeks of time for many people. The savings were spectacular.

Data-entry and presentation are important, but what do you do with all that data? Paradox has the most elementary statistical functions, count and average; and Quattro adds standard deviation and variance. But if you really want to analyze your data, you want more detailed capabilities.

What Does It All Mean?

PARASTAT AND KNOWLEDGE SEEKER

Statistics and data are different. Data is raw information. Statisticians take that information as a sample of the larger universe, and use it to make educated guesses. Statistics provide both guesses about the universe ("What is the average income? What proportion of the popu-

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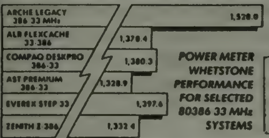

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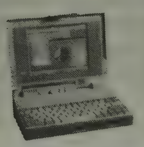

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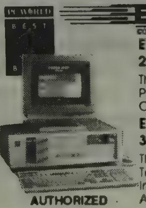

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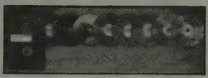

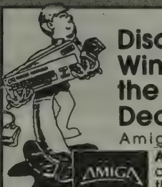

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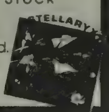

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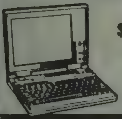

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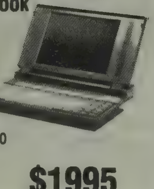

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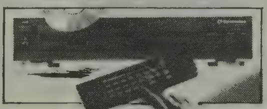

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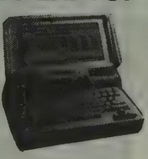

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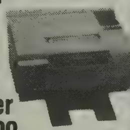

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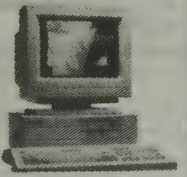

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lation will vote with us?"), and estimates of how accurate those guesses are.

For a demographics project at San Francisco State University I was able to use two packages to analyze data. One is a standard third-party Paradox statistics package. The other is Knowledge Seeker, which is an absolute breakthrough in statistics.

ParaStat ($195 from Financial Modeling Associates, 703/356-4700) is a Paradox add-in which does some fairly sophisticated statistical analysis from inside Paradox. It gives confidence intervals, various means, percentiles, frequency distributions—all functions you could cobble together for yourself in Paradox and Quattro, but which require some effort. It also does sophisticated cross-tabulations, regressions (single, multiple, and polynomial), analyses of variance, and chi-square tests of independence. It has built-in probability calculations for Z, chi-square, T, and F functions—probabilities which statisticians are forever looking up in tables.

ParaStat has virtues and failings. It is written as a combination of Paradox Application Language and Turbo Pascal functions, so exists entirely within Paradox . Its functions can be used in your own (not for sale) applications. Its output is in Paradox tables. These features mean that it can be used seamlessly within a Paradox application. On the other hand, its functions are slow. The documentation is extremely sketchy and assumes considerable sophistication in the user. If you have the knowledge to use ParaStat without further information, you probably already own another statistical package.

> With these products, I was able to do much more on my microcomputer than I could have on the mainframe that was offered to me at SF State. This means that statistical analysis on a desktop is practical, and affordable, right now.

Where ParaStat shines is as an occasional tool for a Paradox-using corporation with a knowledgeable statistician aboard. I used it to analyze demographic data for significance, and I found it invaluable. Since the cost is reasonable, ParaStat will probably pay for itself the first time you need to use it. If the documentation were improved, ParaStat could reach and serve a much larger audience. In particular, it could conquer the niche between spreadsheet statistical abili-

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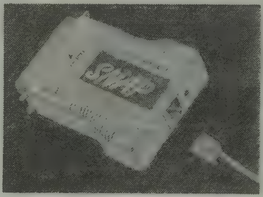

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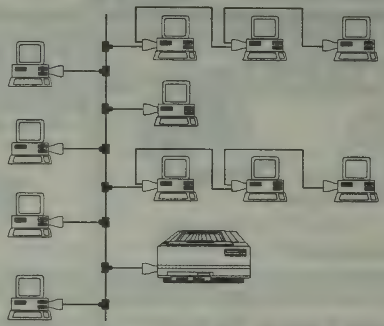

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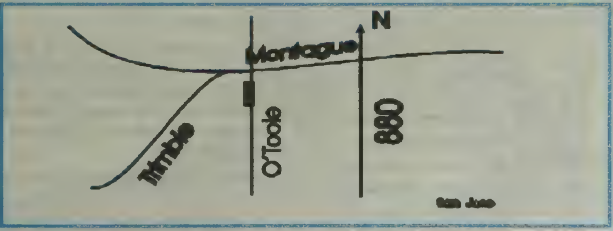

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It is only fair to warn you that Knowledge Seeker suffers from poor documentation. Though well-done graphically, its organization does not underline the most powerful features of the program.

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Continued on page 206

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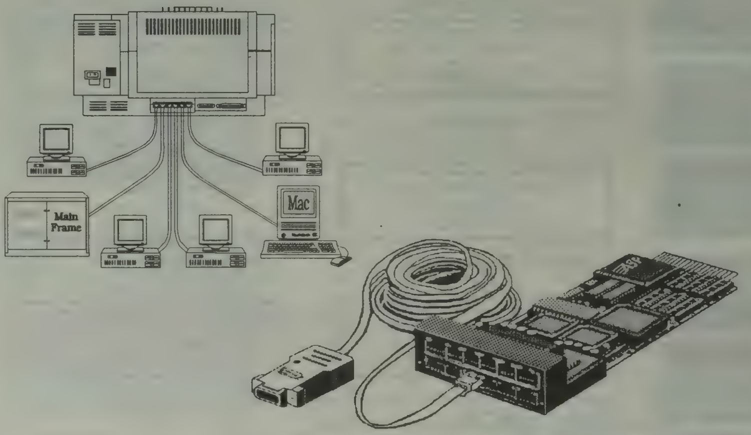

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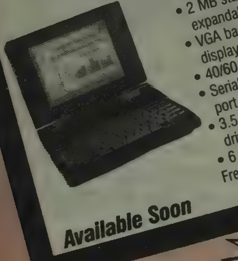

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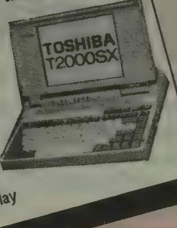

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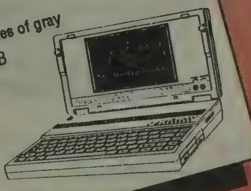

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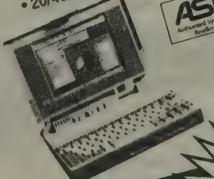

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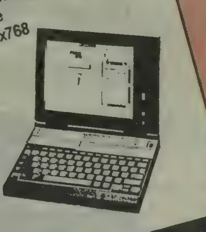

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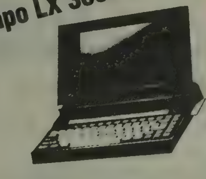

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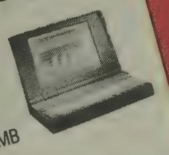

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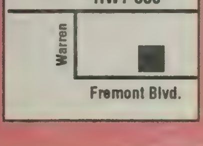

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What Goes Around

Coherent's Convoluted History

BY BENNETT FALK

One of the great hippie mentors, I don't remember which, said, "You have to wait a long time to see the great circles close."

Of course, what counts as a long time or what counts as a great circle are matters of some dispute.

This is particularly so in the computer world, where even if everything isn't actually progressive, it certainly looks linear. Products come and go; they sell for a while and then disappear into happy obsolescence or mutate into something else. Once gone, they practically never come back.

Coherent, from the Mark Williams Company, may be the exception to this. Coherent is a UNIX-like operating system. It's a multiuser, multitasking operating system that does virtually everything UNIX does, but it contains no AT&T source code. The utilities included with Coherent function like their UNIX counterparts (with rare exceptions, such as the "ps" command).

Coherent was one of the first UNIX-like products for the IBM line of personal computers. The Coherent kernel running on my machine now was first copyrighted in 1982.

> **A lot of hardware is required to run true UNIX these days, and the problem facing UNIX users today is not much different from the problem facing them in 1982: getting UNIX to run on a computer that is relatively small and relatively cheap.**

THAT WAS THEN...

In 1982, it was not clear to anyone just exactly how the destinies of UNIX and the IBM family of personal computers would mingle. No one knew what the "UNIX crowd" wanted or how PC users would regard AT&T's multiuser, multitasking operating system.

UNIX

Some insisted on porting full-blown AT&T UNIX to the modestly powered, Intel-based computers of the early 1980s. Only true UNIX would do, and the hardware, they reasoned, would eventually catch up, and the initial effort of porting to Intel processors would pay off as more powerful processors became available.

Others, the Mark Williams Company among them, apparently felt that the UNIX of the times was too bulky to port to the PC, and that the desired multiuser, multitasking environment could be provided more efficiently by creating an operating system that looked like UNIX from the ground up. These products were expected to have a performance advantage over ports of AT&T UNIX to the PC family.

Coherent did not do poorly the first time around. But the market wanted real UNIX, and Coherent was eventually overshadowed by the products (like XENIX from Microsoft and SCO and Interactive's UNIX) that could claim to be based on AT&T's UNIX.

This was not a totally irrational preference. The genuine UNIX products prospered because application software developers trusted UNIX as a platform for building applications. The evolution of UNIX was under AT&T's control and to some extent predictable.

Copyright © 1991 by Bennett Falk. All rights reserved. Bennett Falk lives in the Bay Area, writes when he can, and hopes for the best. He works for Sybase, but the opinions and attitudes expressed are his own.

THIS IS NOW...

Now, roughly nine years after its introduction, Coherent is finding a new appeal. AT&T's UNIX has grown considerably in the intervening years. Among workstation users, the rule of thumb is that a UNIX workstation will need about 100MB of disk space just to boot the operating system. User files and application software will require even more disk. Modern user-interface packages (X Windows, for example) also demand larger random access memory and faster CPUs.

A lot of hardware is required to run true UNIX these days, and the problem facing UNIX users today is not much different from the problem facing them in 1982: getting UNIX to run on a computer that is relatively small and relatively cheap.

Coherent continues to be a relatively small product. Coherent will run with as little as 10MB of disk and only 640K of memory. Coherent can "coexist" on the same disk as DOS, but must reside in its own partition. There is no access to DOS files or applications while Coherent is running. Similarly, Coherent files or programs cannot be accessed from DOS. It is the perfect way to get some of the benefits of UNIX on a laptop. And with a price of $99.95, it's hard to go wrong.

COHERENT TODAY

Coherent still cannot provide access to a large volume of application software, but it is certainly an adequate solution for anyone who wants something like UNIX for its own sake.

The system includes all the things that made the original UNIX system attractive: utilities for software development (a C compiler, lex, yacc, m4, and the like), document production (nroff, troff, etc.), and communication with other computers (uucp). In more recent UNIX offerings these utilities have become distinct from the basic operating system and are offered as separate products. They are an integral part of the Coherent package.

Coherent resembles Version 7 UNIX. As in Version 7 UNIX, there is no virtual memory capability in Coherent. Its C compiler, though conforming to the first edition of Kernighan and Ritchie, embodies a version of the language that is a distant predecessor of ANSI C. And the user interface is the clunky command line interface of the UNIX shells and lacks even the "multi-screen" feature of SCO's XENIX.

Administering Coherent, however, is relatively simple. The system uses the old style uucp setup and the Version 7 conventions for managing terminals connected to the system (the "ttys" file instead of "inittab"). These things may not be modern, but they work. Much of the administrative work that falls to the system administrator on a conventional UNIX system (sizing the swap area, for example) is hidden from the Coherent administrator.

In spite of Coherent's similarity to Version 7 UNIX, there are some significant differences. Chief among these is Coherent's support for "installable" device drivers. Typically, in UNIX systems, the software that manipulates a hardware device is compiled into the UNIX kernel, and when the system is booted, the kernel loads all the device drivers it contains into memory.

Coherent allows device drivers to be maintained outside the operating system kernel. With a utility called "drvld," device drivers can be loaded by the superuser any time after the kernel has booted. The advantage of this strategy for handling device drivers is that the Coherent kernel is tiny by UNIX standards (only about 70K), and the system need not be rebooted to add device drivers.

While most vendors of conventional UNIX systems have automated the process of adding a device driver to the UNIX kernel, the whole business of rebuilding the kernel remains one of the least understood and most peril-fraught operations the system administrator must perform. The Coherent approach to this eases the burden considerably.

The current release of Coherent includes several add-on utilities (the micro-EMACS editor, a Korn Shell clone, and Kermit) that are not part of UNIX but should make Coherent interesting to a larger audience.

In addition to the basic operating system, two add-on packages are available from Mark Williams: a kit for building device drivers and a collection of public domain programs with source code adapted for Coherent.

BENCHMARKING COHERENT

Tables 1–4, below, show the results of running a modified version of the *BYTE* UNIX benchmarks (first published by David Hinnant in *BYTE* in 1983) on Coherent. For comparison, results are included for the same suite of tests run under SCO XENIX and SCO UNIX. In each case, the figures presented are the averages of ten iterations of the whole test suite.

The tests that were run fall into four categories. The CPU-intensive tests measure speed of computation ("sieve"), system call efficiency ("scall"), looping efficiency ("loop"), and the overhead involved in using function calls ("fcalle") in place of simple assignments ("fcalla"). The disk-intensive tests measure disk read ("dread"), disk write ("dwrite"), and pipe throughput ("pipes"). The "shell" test measures the system's multiuser capacity by running up to six concurrent sessions. Finally, the time required to compile the C source code for the other tests is included as a general measure of compiler efficiency.

All the tests were run on the same computer, a 16MHz Wyse

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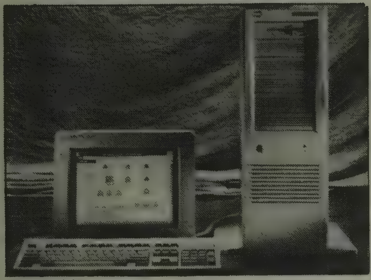

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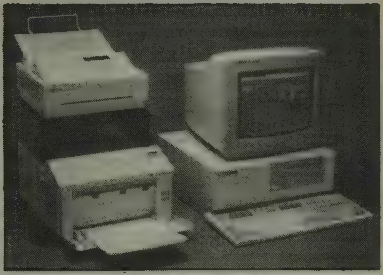

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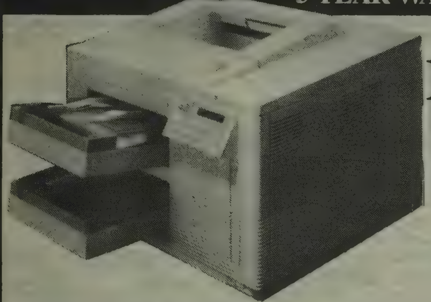

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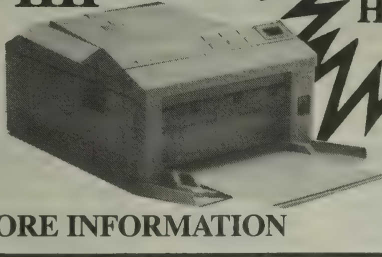

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386 PC with an 80287 math coprocessor, but since the original XENIX measurements were made, the configuration has changed to keep up with the times. For the XENIX tests, the computer featured 2MB of RAM and a 60MB hard disk. In testing SCO UNIX 2.0, the 60MB hard disk was replaced with a 150MB disk on a SCSI controller.

Coherent performs reasonably well in the CPU-intensive tests, but it is relatively slow in any test that relies heavily on disk I/O. This is not particularly surprising given the "one size fits all" configuration. It is not clear how much performance could be improved by tailoring the kernel to the resources at hand, but the wild fluctuations in the results of the compilation tests are most likely caused by stingy allocation of disk caching resources.

Despite the fact that it is neither fast nor stylish nor up-to-date, Coherent is an immensely satisfying product for people who just enjoy working with UNIX. Fortunately, that group is much larger now than it was in 1982. ■

RESOURCES:

Coherent
Mark Williams
Company
60 Revere Drive
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800-627-5967

TABLE 1: CPU-INTENSIVE TESTS

	XENIX	UNIX	Coherent
	2.1	3.2.2	3.2
	2MB	6MB	6MB
Executing fcalle			
	0.34	0.32	0.41
	0.2	0.2	0.4
	0	0	0
Executing fcalla			
	0.13	0.12	0.2
	0	0	0.1
	0.01	0	0
Function Call Overhead	0.21	0.20	0.21
Executing loop			
	1.8	1.91	3.52
	1.7	1.8	3.21
	0.03	0.04	0.04
Executing scall			
	2.45	3.04	3.00
	0.25	0.32	0.29
	2.13	2.65	2.66
Executing sieve (100 iterations 1899 primes)			
	9.05	10.42	9.64
	8.9	10.28	9.41
	0.04	0.03	0.01

TABLE 2: DISK-INTENSIVE TESTS

	XENIX	UNIX	Coherent
	2.1	3.2.2	3.2
	2MB	6MB	6MB
Executing dwrite			
	0.33	0.5	1.86
	0	0	0
	0.25	0.24	0.51
Executing dread			
	0.65	0.35	0.67
	0	0	0.06
	0.23	0.26	0.27
Executing pipes			
	1.23	1.28	2.17
	0	0	0.01
	0.53	0.62	1.29

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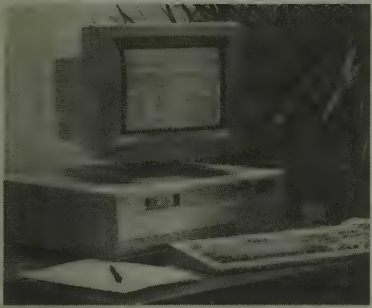

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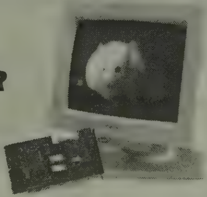

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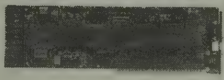

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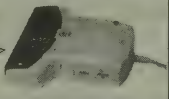

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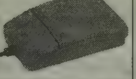

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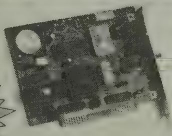

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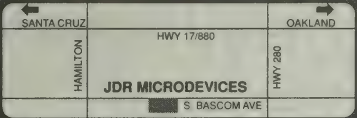

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TABLE 3: MULTIUSER TESTS

	XENIX 2.1 2MB	UNIX 3.2.2 6MB	Coherent 3.2 6MB
Shell 1			
	2.47	1.83	3.63
	0.08	0.1	0.14
	0.6	0.58	0.75
Shell 2			
	2.18	2.66	7.12
	0.18	0.19	0.28
	1.2	1.11	1.37
Shell 3			
	3.45	3.76	10.27
	0.18	0.34	0.37
	1.86	1.62	2.08
Shell 4			
	3.86	4.59	14.28
	0.31	0.43	0.54
	2.32	2.29	2.79
Shell 5			
	4.77	5.74	17.73
	0.38	0.6	0.63
	2.91	2.9	3.45
Shell 6			
	5.71	6.71	21.21
	0.48	0.68	0.72
	3.53	3.6	4.18

TABLE 4: COMPILER TEST

	XENIX 2.1 2MB	UNIX 3.2.2 6MB	Coherent 3.2 6MB
Compiling dwrite.c			
	4.76	4.1	7.01
	1.11	1.14	0.71
	1.39	1.18	0.94
Compiling dread.c			
	3.4	3.45	7.18
	1.11	1.17	0.85
	1.12	1.15	0.93
Compiling fcalle.c			
	2.81	2.6	4.69
	0.7	0.54	0.18
	0.99	0.86	0.73
Compiling fcalla.c			
	2.62	2.58	4.63
	0.57	0.45	0.13
	1.03	0.84	0.68
Compiling loop.c			
	2.83	2.92	6.4
	0.65	0.57	0.44
	1.07	0.98	0.86
Compiling pipes.c			
	3.1	3.16	6.56
	0.94	0.86	0.59
	1.08	1.02	0.9
Compiling scall.c			
	2.73	2.51	4.71
	0.62	0.41	0.1
	1.02	0.82	0.67
Compiling sieve.c			
	3.01	3.29	6.9
	1.07	0.96	0.65
	1.04	0.9	0.89

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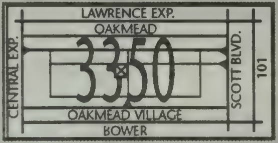

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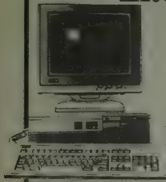

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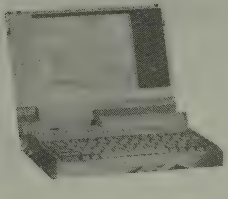

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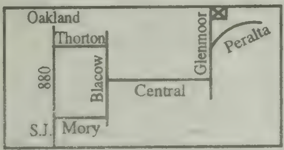

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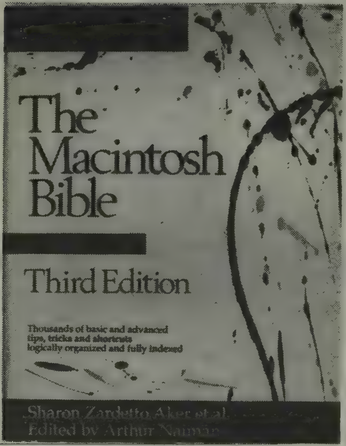
Your First Computer

Some Books For Beginning Users

BY MIKE MARKOWITZ

> *"One last thing, my son, be warned that writing books involves endless hard work and that much study wearies the body"*
>
> **Ecclesiastes, XII:12**

After paying for the computer and the software, it's remarkable that computer users still have anything left to spend on books, but the amount of shelf space devoted to computer books in most bookstores indicates that the demand is real.


The Macintosh Bible
Third Edition
Thousands of basic and advanced tips, tricks and shortcuts logically organized and fully indexed
Sharon Zardetto Aker et al.
Edited by Arthur Naiman

The Macintosh Bible

There are probably no really essential computer books. When you ask Those Who Know, they usually say that they learned the arcane lore of hardware and software "by fooling around," not out of any book.

The answers to many common problems encountered by new users really *do* exist in the manuals that come with hardware and software, but locating and understanding them (especially in Microsoft manuals) can be a struggle.

I thought it might be useful to recommend a few helpful titles for beginners. In general, you can depend on anything published by Que or Sybex, but many other publishers, large and small, do good work. In keeping with the balanced and non-sectarian policy of this column, Macintosh and MS-DOS will get equal treatment.

GETTING STARTED WITH MS-DOS 5 AND THE NEW MS-DOS SHELL

A Self-Help Guide for First-Time Computer Users

By Carl Townsend

Published by: Microsoft Press (1991), 208 pages, ISBN 1-55615-353-8

List price: $17.95

Just out, to accompany the release of the spiffy new v5 of MS-DOS. Microsoft really wants you to buy your PC a mouse, and really, really wants to get everybody in the world ready for Windows, so the new DOS Shell is a "graphical system manager that replaces hard-to-remember MS-DOS commands and procedures with simple operations…"

Hands-on tutorials cover such topics as management of files and directories, running applications from the Shell, customizing your system, using the new text editor (which replaces the gruesome and despised EDLIN), using shortcuts to find files, and printing directly from DOS. The book is indexed and well illustrated with screen shots.

The book includes a useful table of keyboard and mouse conventions and a troubleshooting guide. A few copies of this book might be a good training investment for any PC installation manager who plans to upgrade to v5.0.

The "Getting Started Right" series was designed by Microsoft Press as a way to help get new users up and running in the shortest possible time, according to the press release. It may also be an ironic admission that the manuals you find inside the box with Microsoft products tend to be truly awful.

SIMPLY DOS

By Kris Jamsa

Published by: Osborne McGraw-Hill (1991)

2600 Tenth Street, Berkeley, CA 94710

List price: $14.95

The price seems rather high for a 212-page paperback, but the binding is good and the two-color layout includes a lot of charming line drawings.

The answers to many common problems encountered by new users really do exist in the manuals that come with hardware and software, but locating and understanding them (especially in Microsoft manuals) can be a struggle.

The content is very, very elementary—this is the book you might give to someone who has never touched an MS-DOS system before and is experiencing major anxiety over the prospect. By Chapter 10, you'll be writing your own batch files like a real propeller-head.

The information is current up to MS-DOS 4.0, but mostly covers topics that haven't changed since around v2.11.

THE ULTIMATE COLLECTION OF COMPUTER FACTS AND FUN

A Kid's Guide To Computers

Published by: SAMS (1991)

11711 N. College Avenue, #140, Carmel, IN 46032

List price: $12.95

Designed for ages 8–10, these one hundred colorful pages cover twenty-five topics including: parts of a computer, what is programming?, software concepts, modems, drawing and painting with a computer, where to find free software, and (oops) "IBM vs. Apple."

I am suspicious of books that don't declare an author. I have a feeling that computer books for kids have much greater appeal to the

Continued on page 61

Copyright ©1991 by Mike Markowitz. All rights reserved. *Mike Markowitz is a computer user support specialist for a large Southern California university. He has been writing about personal computing since 1984. Send him electronic mail at MOUSKOWITZ on America Online and apple!pepvax.pepperdine.edu!mmarkowi on the Internet.*

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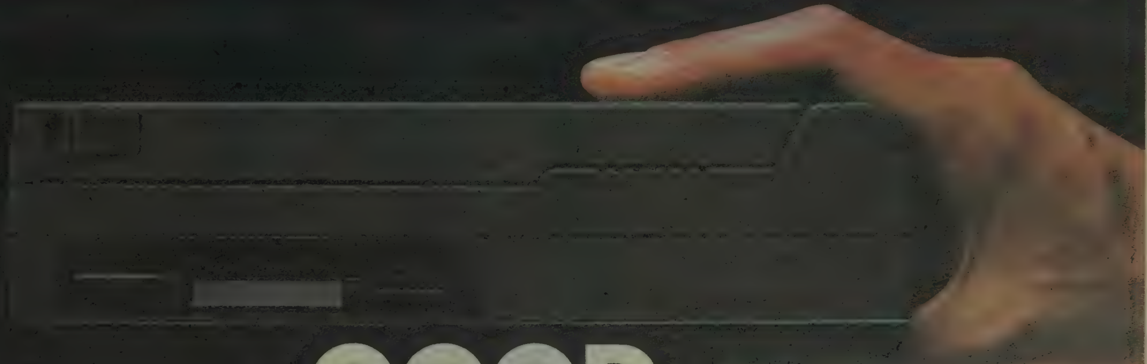

GOOD THINGS COME IN SMALL PACKAGES.

For the person on the move, portability has always been important. But what good is small and light if your capabilities are limited to few and none?

That's why Altima created the LSX notebook computer. It's a powerful 386SX that stands only two inches high, and weighs a mere 6.3 pounds.

Best of all, because this sleek travel companion is only 8.6″ × 11″ in size, it'll fit inside your briefcase, with plenty of room to spare.

That answers the portability issue. Now, what about performance?

The Altima LSX runs at 20 MHz and comes standard with a 40 megabyte hard disk drive. And the extremely crisp VGA display generates 640 × 480 resolution with 32 levels of grey scaling for better viewing of your applications.

What's more, you can purchase the LSX with a modem that features send fax capability and receive the new WordStar Laptop Collection.

Try the new LSX light weight notebook from Altima. It's the small package you can leave with. At a price you can live with.

FREE WordStar Laptop Collection with LSX and Fax/Modem Purchase

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altima

LSX includes MS-DOS, fax software, and carrying case

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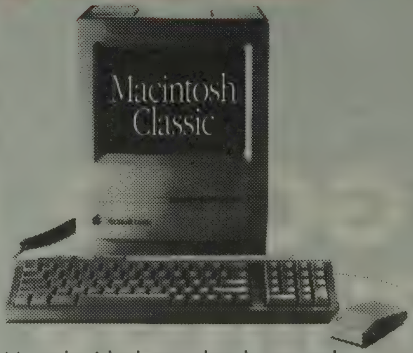
* Offer subject to credit approval by Monogram Credit Card Bank of Georgia. FINANCE CHARGES will accrue at a rate of up to 20.4% ANNUAL PERCENTAGE RATE with up to a $.50 minimum FINANCE CHARGE. If these purchases are paid in full within 90 days of purchase date, your account will be credited for all finance and insurance charges which accrue on purchases made under the "90 Days Same As Cash" promotion.

Save $125 on the Advanced Macintosh® Classic®



Now the ideal entry level personal computer is more easily affordable than ever. Purchase the Classic 2/40 with 2 MB RAM and 40 MB hard drive, and either an Apple® StyleWriter® or Apple Personal LaserWriter® LS and receive a $125 Instant Rebate towards your purchase.

Macintosh Classic 2/40	**$1199**
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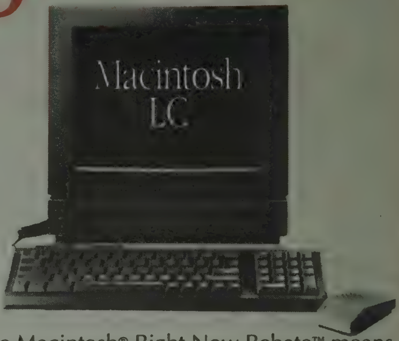
Save $350 on the Macintosh® LC



The Macintosh® Right Now Rebate™ means now is the time to purchase the most affordable color solution in the Apple® line. The LC's solid performance makes it an excellent choice for educational and business use. Purchase the Macintosh LC with an Apple 12" RGB Display or a 13" AppleColor® High Resolution RGB Monitor and either an Apple StyleWriter® printer or and Apple Personal LaserWriter® LS and receive a $350 Instant Rebate from Apple.

Macintosh LC 2/40	**$1699**
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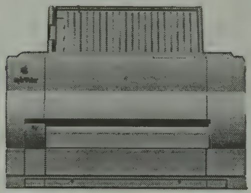
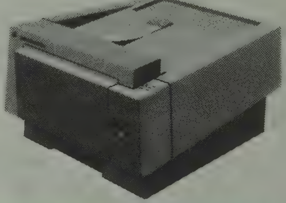
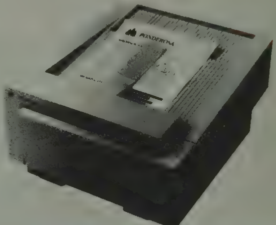
Monitor extra. Keyboard extra on some models







Print in Style

The StyleWriter® exemplifies the ingenuity of Apple® innovation & affordability. Apple brings outstanding laser-like quality results, quiet operation, and space saving compact design for only a fraction of the cost of a laser printer. Compatible with all Macintosh® computers.

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Personal LaserWriter® LS

The new personal LaserWriter® LS printer is the most affordable personal laser printer from Apple®. It's compatible with all Macintosh® computers.

$875

Personal LaserWriter® NT

The Personal LaserWriter® NT offers individuals and small workgroups affordable, high-quality PostScript® laser printing in a compact design. This printer has a built-in AppleTalk® interface for Macintosh® computers.

$1695

* Rebate applied after sales tax.

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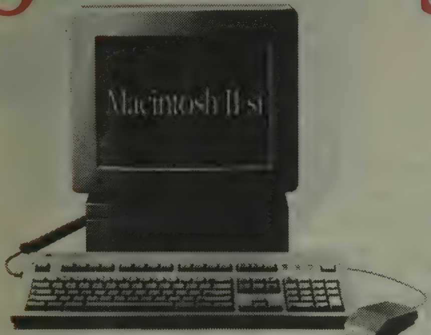
Save $600on the Macintosh® IIsi 3/40

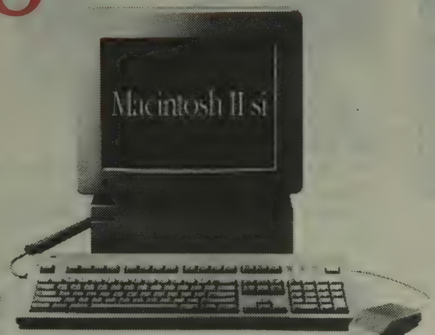


The Macintosh® IIsi has the flexibility to meet your growing demands. Equipped with color and sound capabilities, this member of the modular Macintosh product line comes with 3 MB RAM and a 40 MB hard drive making it an excellent choice for business or educational uses. Purchase the Macintosh IIsi 3/40 with either the Apple® Personal LaserWriter® LS or the Apple Personal LaserWriter NT and receive a $600 Instant Rebate towards your purchase.

Macintosh IIsi 3/40	**$2599**
Less	**$600**

Monitor and keyboard extra. **$1999 Net***

Save $800 on the Macintosh® IIsi 5/80



The Macintosh® IIsi's powerful 5 MB RAM configuration includes an 80 MB hard drive and a built-in cache for increased performance. System 7 capable, the powerful Macintosh IIsi 5/80 is a member of the Modular Macintosh product line. Purchase the Macintosh IIsi 5/80 with either the Apple® Personal LaserWriter® LS or the Apple Personal LaserWriter NT and receive an $800 Instant Rebate towards your purchase.

Macintosh IIsi 5/80	**$3149**
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Huge Multiple Macintosh® Savings

Macintosh IIci

Save up to $800 each on 3 or more Macintosh® IIci or Macintosh IIsi

The Macintosh® IIci gives you power with room to grow. This member of the Modular Macintosh family has flexible video support built-in to support a variety of monitors without adding a video card. Purchase a combination of at least 3 Macintosh IIci or Macintosh IIsi models and receive an Instant Rebate from Apple® of $600 to $800 each without a monitor purchase.†

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Monitor and keyboard extra. **$1999 Net***

Macintosh IIsi 5/80	**$3149**
Less	**$800**

Monitor and keyboard extra. **$2349 Net***

Macintosh IIci 5MB	**$3495**
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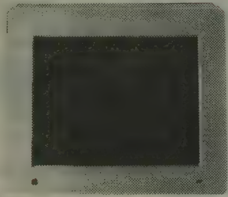

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The Macintosh® 12" RGB display gives dazzling results to text and graphics, making it the right choice for Macintosh® LC users.

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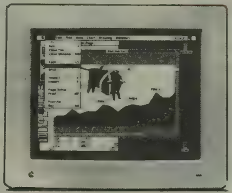

AppleColor® High-Resolution RGB Monitor

The AppleColor® High-Resolution RGB monitor is a perfect match for the modular Macintosh® family. You get enough resolution and clarity to display any color you can imagine.

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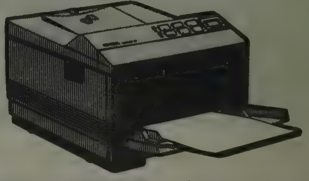
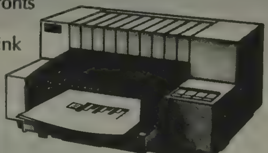


HP DeskJet 500 Printer

- Improved print quality
- Added internal fonts
- 3 year warranty
- Water resistant ink cartridges.



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HP LaserJet IIP Printer

- Most affordable HP Laserjet printer
- Publication quality output.

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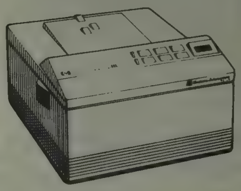
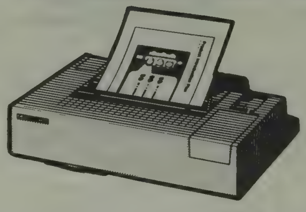
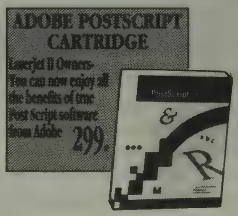


HP LaserJet IIIP Printer

- PCL5 allows you to scale type to thousands of sizes
- Versatile paper handling capabilities
- PostScript® options for PC or Macintosh ®





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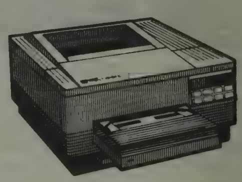

HP PaintJet Color Graphics Printer

- High quality color charts & graphics
- PC or Macintosh® compatible
- Wide range of software support.

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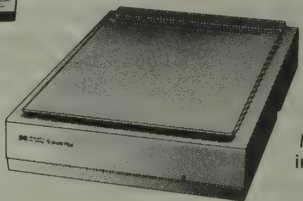

HP ScanJet Plus Scanner

- 256 grey scale levels (8 bit) for high-resolution images • Wide range of contrast & intensity control • PC or Macintosh® compatible • Price includes interface.

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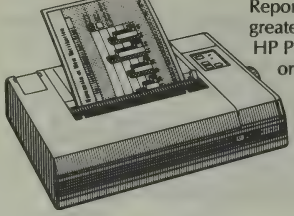
Color Me Brilliant HP PaintWriter

Reports and presentations achieve their greatest impact in color produced by the HP PaintWriter printer. Prints on paper or transparency for maximum versatility. Compatible with Macintosh® color computers.



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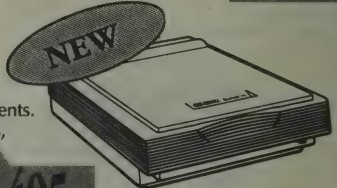
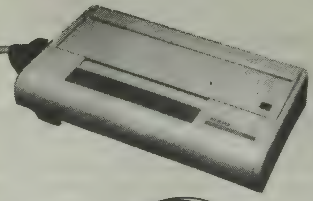
HP ScanJet IIc

The new HP ScanJet IIc gives you 256 levels of gray or 24-bit color professional quality documents. Supports IBM AT-compatible PCs, MicroChannel or Macintosh® personal computers.



Starting At **1495.** **Price includes interface**

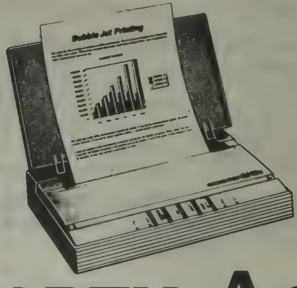


Kodak

Kodak Diconix 150 Plus

The laptop companion that prints in draft, NLQ and/or quality mode, designed with portability in mind.

379.



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Have Printer, Will Travel

The Canon BJ10e gives you high-quality documents anywhere, anytime. This portable printer has 360 dpi resolution and battery operation.

Optional battery and sheet feed.

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LQ-570

This new 24 pin printer utilizes scalable fonts, enhanced graphics and advanced paper handling to offer more performance than any printer in its class at an affordable price.

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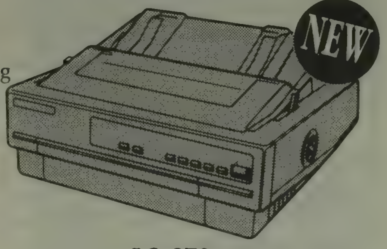

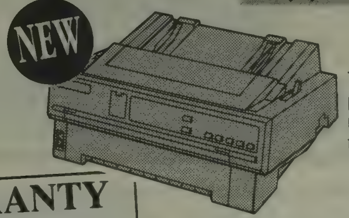

LQ-870

This new 24 pin printer is a major step forward in printer technology with high speed, and high performance that sets a new industry standard for quality with scalable fonts.

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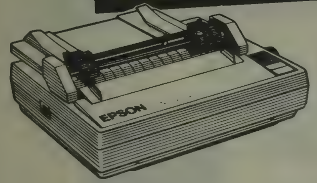
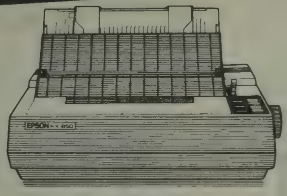
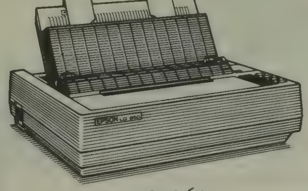
LQ-1170 Wide Carriage Model.......**699.**

TWO YEAR WARRANTY ON ALL EPSON PRINTERS







LX-810

- 9 pin • SmartPark™ paper handling
- 200 CPS super draft • 30 CPS NLQ
- High resolution graphics.

159.

FX-850

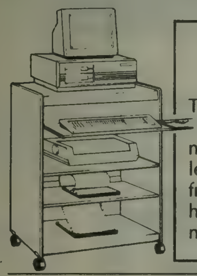
- 9 pin dot matrix • 264 draft 54 NLQ
- Push tractor paper park for single sheet feed.

295.

LQ-860

Epson's newest letter quality color printer
- 300 CPS draft
- 98 CPS NLQ

569.



All-In-One Mobile Microcomputer Center

The answer to your storage problem. This space saver is designed to organize your entire microcomputer system- including your printer- in less than three square feet of floor space. Crafted from wood solids and matching veneers, this is a high quality solution for your computer furniture needs.

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We now carry a full selection of Maxell brand printer ribbons. Long lasting and reasonably priced, Maxell ribbons are designed to fit the most popular printers available today. **Come in and check it out!**

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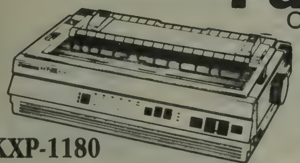

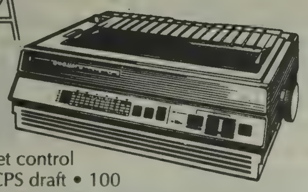

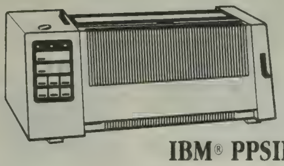

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Authorized Personal Computer Dealer

KXP-1180

- 9 pin • EZ set control panel
- 192 CPS draft
- 38 NLQ • 6 resident fonts
- Push/pull tractor
- 11.7" carriage.

149.

KX-P1124i

- 24 pin • EZ set control panel • 300 CPS draft • 100 CPS NLQ • 36 CPS SLQ • 8 resident fonts
- Push/pull tractor • 360 x 360 dpi graphics
- 2 year manufacturer's warranty

IBM® PPSII

IBM introduces 2 new 9 pin printers that can print crisp, six -part forms and thick paper stock with no problem using straight paper path technology. Solid and reliable, these printers perform flawlessly. 2380 Narrow Carriage ......**349.**

2381Wide Carriage..........**499.**

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IBM PCs Laptops Laser Printers

Quality Products...

Authorized Service...

Affordability....

110% Price Protection Program...

Investment Protection...

Technological Leadership...

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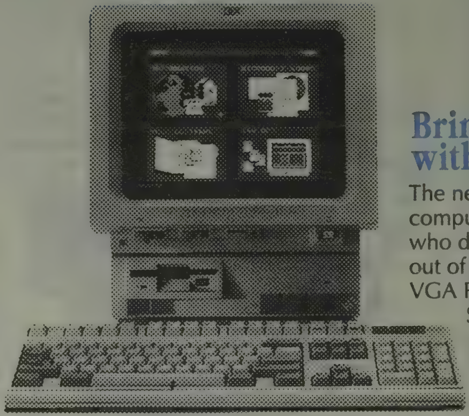

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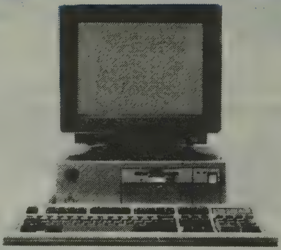

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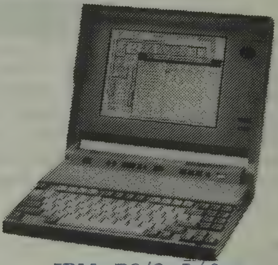

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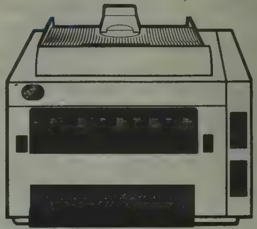

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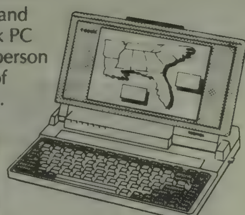

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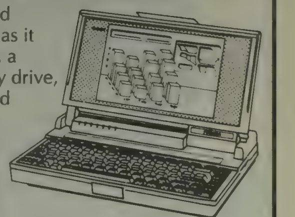

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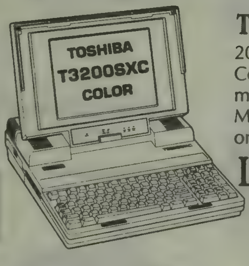

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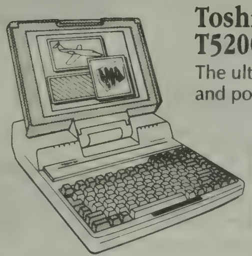

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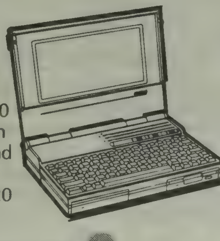

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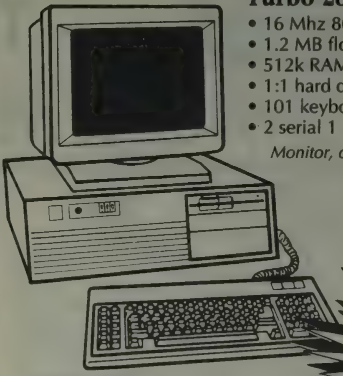

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- 16 Mhz 80286
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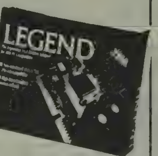

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Sony 1320 VGA
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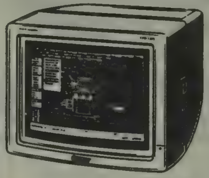

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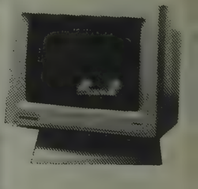

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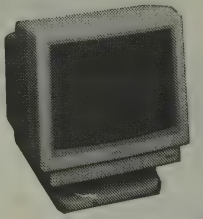

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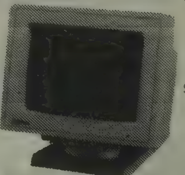

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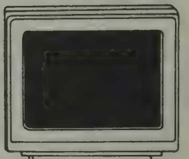

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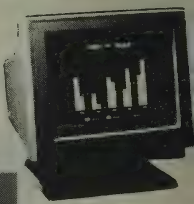

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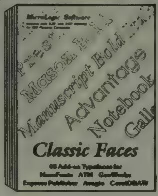

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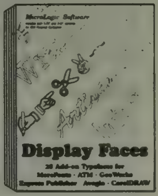

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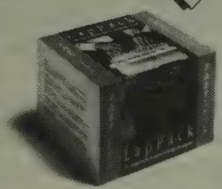

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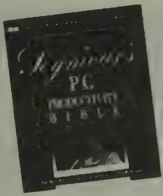

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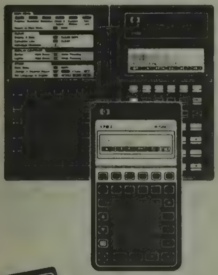

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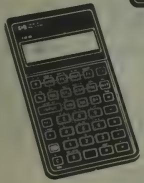

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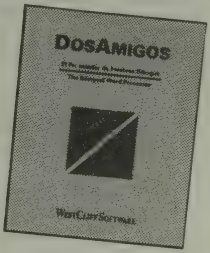

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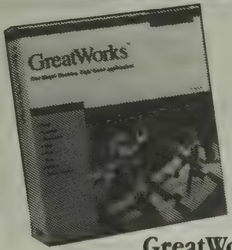

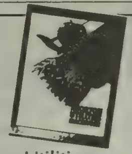

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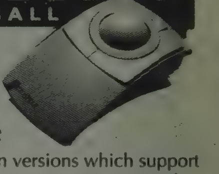

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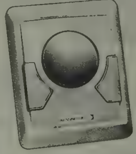

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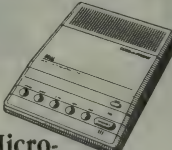

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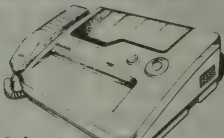

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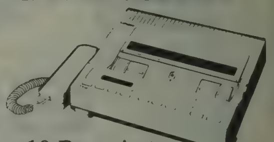

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Continued from page 50

adults who produce and promote them than to the kids who would rather be punching keys and learning arcane hardware and software knowledge by fooling around. But SAMS (a division of Macmillan Computer Publishing) has a reputation for good solid books. Possible stocking-stuffer?

THE MACINTOSH BIBLE

Edited by Arthur Naiman
Published by: Goldstein and Blair (1990)
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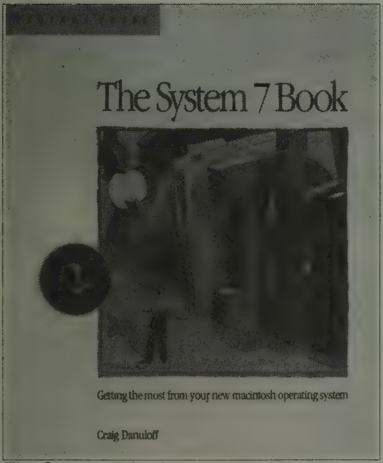
To postpone the inevitable obsolescence built into every computer book, the price of the Mac Bible includes two free updates, mailed out quarterly.

INSIDE THE APPLE MACINTOSH

By Jim Heid and Peter Norton
Published by: Brady Books (1989)
Simon & Schuster, Inc., 15 Columbus Circle, New York, NY 10023
List price: $24.95

Of many very similar books, this is my favorite. Somehow, Peter Norton's inscrutable grin on the cover photo inspires confidence. I like the way this book explains some very technical stuff (like disk data formats) in a clear and jargon-free manner. I learned a lot from this book that I've been able to use in my work. It includes a lot of information you could probably never dig out of hardware and software manuals.

The information is up-to-date for System 6.0 and Macs up to the IIcx.



The System 7 Book

THE SYSTEM 7 BOOK

By Craig Danuloff
Published by: Ventana Press
PO Box 2468, Chapel Hill, NC 27515
List price: $ 22.95

If you actually bought System 7 in the big box from Apple, you don' need no stinkin' book, but if you've acquired the software in the traditional Macintosh fashion, these 512 well-illustrated pages might be very helpful.

Danuloff has worked with Macs since The Beginning, and his credits include *Encyclopedia Macintosh, Mastering Aldus FreeHand* and *Desktop Publishing: Type and Graphics.*

Books on hot new stuff are usually written on the basis of pre-release or "beta-test" versions, but System 7 was in the hands of developers, in fairly stable configuration, for so long that the basic information in this book should be reliable for quite a while. ■

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Philippe Kahn's Plans For Ashton-Tate, Borland Style

BY MARY EISENHART

PHOTO BY DAVID CATILLE

Do you think there's more pressure on you as an owner-operator than on some guy who works his way up to CEO and runs it for a few years?

Sure. There was much more pressure, say, on Mitch Kapor than there is on Jim Manzi. No one knows who Jim Manzi is, and no one really should—he's an MBA, a professional manager managing an existing company. Mitch was something else—there was personal pride and personal investment in Mitch building the product, and for him it was a tremendous pressure. All these lawsuits that Lotus started, he disapproved of. Because it was ***personal.*** *As he said, it might have been a good MBA decision, but it was a very bad personal decision, and he didn't want to be associated with it.*

Very few people are still like that in this business. Bill Gates is probably still like that. But it's true, you take things personally, and it's a big difference. See, if an Ashton-Tate product gets a bad review or something like that, nobody cares at Ashton-Tate. Everybody's gone. If a Borland product gets this, I feel personally like I have to do something about it.

One of the things about the products we've acquired, such as Paradox, is that the R&D teams are there, and it becomes part of the family. It's not just we bought a product and we're going to market it. The whole team is in.

How do you grow? You can't expect the original guys in the company to write all the software that the company will sell when it's a hundred times bigger than it was. So how do you add people? You can hire them, you can acquire smaller companies and bring talent in—as long as you keep the talent in. All this is part of the process, and it's very personal.

— ***"Paradox and Philosophy with Philippe Kahn,"***
MicroTimes, ***November 1987***

Philippe Kahn is used to shock waves, as befits the leader of a company strategically located near the epicenter of the Loma Prieta earthquake. He appears to enjoy causing a few as well.

When we finally connect after a day of phone tag, Kahn is on the car phone, tooling around the Valley on his way to a late meeting and cheerfully cursing the traffic jams interfering with this agenda. He's happy to discuss his most recent bombshell—the announcement that Borland and Ashton-Tate have agreed to merge, on terms that amount to a Borland takeover of the Southern California software giant.

The plan, which calls for Borland to acquire Ashton-Tate stock for $17.50 per share (about twice its recent market value) still awaits the approval of both companies' stockholders. (See Industry Insight, this issue.) To founder, president, CEO and chairman Kahn, however, it's an obvious, sensible, technology-driven move that benefits just about all concerned—though he's candid about deep cuts in Ashton-Tate's personnel should the deal go through.

Torrance-based Ashton-Tate, once the undisputed leader in the personal computer database world, has been plagued in recent years by delays in the shipment of dBASE IV 1.1, its flagship product—and by a host of competitors like Fox and Nantucket, who were able to get dBASE compatible products with superior features to market as 1.1 languished in the lab. Irritated by Ashton-Tate's failure to advance the state of the dBASE standard, meanwhile, Fox, Nantucket, and a host of smaller competitors and developers began referring to the standard as xBASE and defining it independently. (See "Clash of the Database Titans," issue #80.) The competition grew nastier as Ashton-Tate sued Fox for copyright infringement; in one memorable (if, perhaps, short-lived) dramatic reversal, the judge in the case ruled last December that Ashton-Tate didn't own the copyright on the dBASE code. The suit currently drags on, its outcome far from certain.

Coming on board last year, A-T CEO William Lyons returned the company to profitability and got 1.1 out the door; more recently, Ashton-Tate acquired a company called Interbase, which brought valuable cross-platform server technology to enable dBASE to move into multivendor client-server environments. To many observers, however, it appears to be too little, too late.

All of which could hardly be more at variance with Borland's way of doing things—that is, fans and detractors agree, Philippe Kahn's way of doing things. The company has evolved from a startup selling a few TurboPascal disks to a publicly held company approaching the scale of Lotus and Microsoft, driven by the ever-expanding vision and technoperfectionism of its founder. He's one of the few remaining founder-CEOs and engineer-CEOs in the industry, and shows no immediate signs of turning his company over to the bean-counters. A maverick even by California standards, the French-born Kahn opposed copy protection and championed low-cost software long before it was fashionable to do either. His commitment to R&D has resulted in Quattro Pro, a Borland-developed spreadsheet, and the evolution of Paradox, the database technology it acquired in 1987, into a major contender. His zeal for customer support extends to personally answering copious quantities of electronic mail—and is shared by the company at large to the extent that Borland was recently named first in customer satisfaction among software companies by J. D. Power and Associates.

Not that life is all rosy. Quattro Pro is the target of the Lotus Look-And-Feel Litigation Machine, in a case whose implications are far broader than those of the VP-Planner suit—unlike spreadsheets involved in previous suits, Quattro allows the user to select a number of interfaces according to individual preference. One of them is 1-2-3's. This, apparently, is too much for Lotus, and eventually the matter will go to trial. Kahn is, of course, determined to prevail.

But in the meantime, there's more to life than look-and-feel suits. Last year Kahn, a versatile wielder of the flute and saxophone, gathered a distinguished group of musicians to record an album, Pacific High, under the aegis of Borland Musical Craftsmanship. Pacific High's an evocative collection of music from Hawaiian chants to jazz interludes to high-tech rap, with Kahn contributing flute and the occasional vocal.

"A world connected is a better world," says Kahn in the liner notes. "Personal Communicators—PCs—are the best guarantee of freedom in the centuries to come, with all the challenges that lie ahead. Since 1989, we have seen a dramatic acceleration of history. It's Turbo Disturbo."

No kidding. But Kahn and Borland seem to be surfing the chaos pretty well these days.

Last time we did a major interview with you, you'd just acquired Ansa. How does the Ashton-Tate deal compare with the Ansa deal in terms of Borland's evolution and strategic direction?

The Ansa acquisition was a great acquisition for Ansa customers, for Paradox customers. It was a great acquisition for Ansa employees and shareholders, and it was great for Borland. I think this is very comparable.

We made Paradox into a star, and incorporated a lot of Borland technology—basically rewrote the whole thing over time—and made it into a standard, one that was reliable and became one of the most important products in the PC industry. I think that shows that we've done it before. In this case, we're committed to make dBASE into a star again.

"We're appalled at what Lotus is trying to do, to the detriment of the user community. They're trying to get a court to think that an ordered sequence of words was copyrightable."

One of the advantages Ashton-Tate currently has is a huge installed base of dBASE customers, but dBASE code is completely incompatible with Paradox code. How do you plan to bring the two product lines into some sort of harmony?

Well, what we've shown is technology Borland's been developing for the last three years. As our corporate customers who were switching to Paradox always had some dBASE code around, they asked us whether we had a way to make both environments coexist, just like, say, C++ and Pascal coexist. There are different expressions and different ways of doing things.

So for the last three years we've been building a product, and at the announcement we've been showing this product. We call it dBASE for Windows, which is a Windows interpretive compiler that allows you to generate either Windows apps or DOS apps. It's a very advanced product.

And this is a Borland product?

Oh yeah, absolutely, 100%. It's what makes this acquisition possible, because it includes the Paradox engine and the object layer, which allows people to concurrently be working using dBASE programs or the Paradox environment on the same data files transparently. It's kind of bringing both worlds together. With the new product, you don't have to choose between one or the other any more, but both can coexist. It's a technical achievement we're very proud of. [see sidebar]

At the time the A-T deal was announced, you were making some comments about getting into the minicomputer arena.

Paradox SQL with SQL Link has taken the lead in terms of front-ending SQL servers. So we've been in there.

It turns out that the interesting technology at Ashton-Tate is Interbase, the company they've just acquired. The Interbase people and ourselves are very excited about working together, because now we have a presence in the server market together. Interbase is the most advanced data server out there, and I think we're going to do it justice. I think Ashton-Tate hadn't even started yet to market it and promote it, put resources behind it.

So where does this leave the xBASE community?

I think it's reviving the xBASE industry. The problem that Ashton-Tate had is that it wasn't a technology leader, and there were a lot of companies that were kind of following behind, and no one was taking the lead in language definitions, and taking the language into the world of object orientation, which really is the '90s way of doing things. Remember, we're the leaders in object orientation.

dBASE for Windows, which we've been showing, is dBASE IV compatible, but on top of that we added a lot of event-driven extensions that allow you to deal with Windows, as well as object-oriented extensions to the language. So we're taking the language to the next step for the '90s.

I think that's exciting for the whole xBASE community, because it's going to make xBASE into a much more exciting environment with the upcoming platform.

Can you speculate as to the disposition of the lawsuits that currently exist between Ashton-Tate and various xBASE vendors?

Yeah. I don't speculate. Our position on lawsuits is well known. Borland is not a litigious company. Provided that Ashton-Tate does not resolve these matters in the meantime, we will seek the fairest possible solution for the customers and all parties involved. That's

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Philippe Kahn on the Future of dBASE, Paradox, and Interbase

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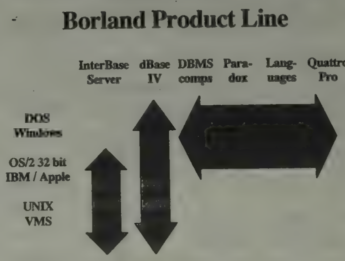

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Paradox is truly entering the world of objects as we enhance PAL using our object-oriented expertise. What makes Paradox great is its apparent simplicity while delivering so much power to the user. With object orientation, you'll be able to visually create complex applications without ever having to program. You'll also get our revolutionary report generator, a powerful database publishing tool supporting business graphs, fonts, graphics, and complex page layouts. Paradox more than ever will give you instant database power.

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The combination of the Paradox engine with the Interbase technology lets us deliver a scalable database architecture from the desktop up to UNIX workstations and the VAX. This scalable architecture coupled with powerful connections to DB2 and other SQL servers means that our systems can easily grow with your needs.

Interbase

Interbase is the first relational database management system to satisfy the demands of online complex processing. The kind of real world applications that we solve in financial trading, publishing, medicine, manufacturing, or CAD/CAM. Architected for optimal performance in multiplatform networks, Interbase provides features targeted at the needs of highly complex database applications in dynamic, distributed environments. Interbase is the clear technology leader with advances such as true peer-to-peer architecture, highly efficient event alerters, "smart" automatic two-phase commit and rollback, multithreaded servers and instant recovery from hardware failures. And the great news is that Paradox, dBASE, and Interbase work hand in hand.

—Philippe Kahn, via MCI Mail

well known.

We've said we're appalled at what Lotus is trying to do, to the detriment of the user community. They're trying to get a court to think that an ordered sequence of words was copyrightable. People have to understand that if they're upset about some lawsuits that Ashton-Tate had suing companies that were making dBASE compilers or interpreters, the Lotus lawsuit against Borland goes even further.

Should Lotus be able to prevail—(laughs) and we'll make sure that they don't and we prevail—that would mean that all programming languages would be copyrightable, all command sequences would be copyrightable, and really things would change dramatically. That's what Lotus is seeking, and that's why we're defending it so vigorously.

So our position is well known, and we will seek a fair solution to all these litigious issues. Borland competes in technology, not in the courtroom.

This deal has to be approved by both Borland and Ashton-Tate stockholders. What do you think both sides will see as advantageous about this?

Well, this is interesting. When you talk about an Ashton-Tate shareholder, getting $17.50 per share is a great deal for them. So there's no question about it—their stock has been fluctuating between six dollars and nine or ten dollars for a year or more, and suddenly they get $17.50 right away. Plus they get Borland stock, which analysts predict is going to do very well. It's a very good deal for Ashton-Tate shareholders.

For Borland shareholders, I think you'll find that stock analysts, the people who have really studied it, will tell you it's a very good proposition, provided that Borland can cut deeply into Ashton-Tate's overhead. We're obviously going to do that.

So for both sets of shareholders it's a good deal, and it rarely happens that way. Usually in the software business you can't cut deep, because you're always at risk of losing technology. You always have that risk. In this case, we don't need any Ashton-Tate technology to make this work, because we've developed dBASE for Windows ourselves; Interbase is an independent company that's extremely excited to be working with Borland, because the focus of Interbase is dealing with objects in terms of server capabilities and all that, and we're the leading company doing object-oriented development tools. So it's a perfect fit.

That's why this works—we've got the technology assurance for the customers and the continuation of the product, and then we can cut deeply in terms of the overhead. For the shareholders it works, and for the remaining people it guarantees a dynamic company.

Borland reported a $78 million quarter with just a bit over 1000 employees. Ashton-Tate reported, I think, a $62 million quarter, with 1750 employees. So efficiency is not really there, and ultimately customers pay the bills.

There's been some speculation in the press that Borland's paying too much for the Ashton-Tate stock, and that that might turn out to be a serious snag in the deal.

Well, given what I've said, we're not. But what can I say? A deal has to be fair for both sides. I think this is a deal that's fair for both sides and good for our shareholders. If the merger was to make sense at $17.25 but not at $17.50, then it wouldn't work.

Mergers and acquisitions like this have to make sense in a much deeper sense—it has to have a vision, a technology future, and all that, just like I described to you. Otherwise it's not going to make sense. Otherwise what's going to happen is that somebody is just going to miscalculate something and all hell's going to break loose.

As to your plans to streamline Ashton-Tate's operation, what bearing does that have on the future of the company's non-dBASE product line, specifically the Macintosh products, as well as Framework and Multimate?

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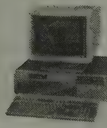

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- Landmark=115
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- Supports External Weitek
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- 1:1 Interleave FD/HD Controller
- Serial, Parallel, Game Port
- 101 Keyboard
- Case w/Power Supply

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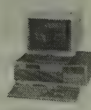
386-33 MHz 64K Cache System



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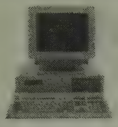

- 1 MB RAM on board
- AMI BIOS
- EMS-LIM 4.0 on Board
- Hard/Floppy Controller (1:1)
- Teac 1.2 MB or 1.44 MB Floppy Drive
- Serial, Parallel, Game Port
- 101 Keyboard
- Case w/Power Supply

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386-SX 16 MHz System

- Intel 386-SX CPU
- 1 MB RAM on board, Landmark=21.6
- AMI BIOS
- EMS-LIM 4.0 on Board
- Hard/Floppy Controller (1:1)
- Teac 1.2 MB or 1.44 MB Floppy
- Serial, Parallel, Game Port
- 101 Keyboard
- Choice: Regular Baby Case or Small Vertical Case

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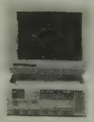
20 MHz **$475**

286-12 MHz System



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- 101 Keyboard
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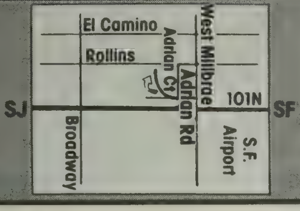

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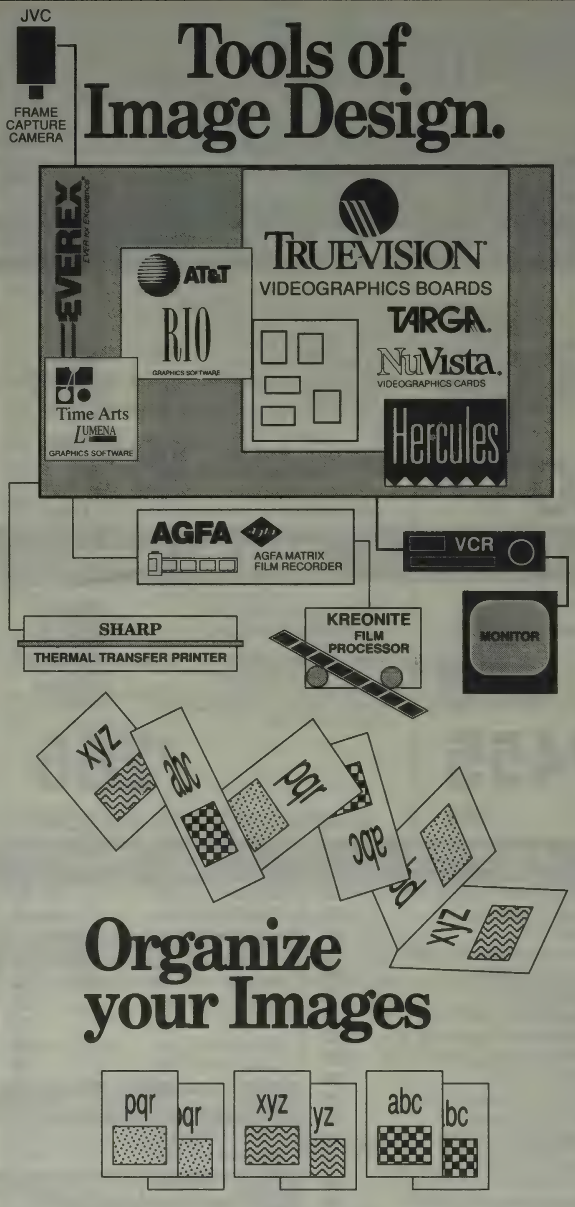

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fulfilled and that customers see their investment preserved. We've focused on the dBASE strategy because that's the key one, and we've been developing the [dBASE for Windows] product in-house. As far as the other products are concerned, we're working on it with some of the stuff we're doing right now.

Ashton-Tate has recently expanded into the UNIX world, specifically the Sun environment. Does Borland have any plans to keep going in that direction, or is UNIX not interesting to you?

I think that object-oriented technology, the way we've built all the software, is obviously going to make a big, big difference in being able to support and enhance versions of our products on the Sun platform. It only makes sense in the long run if you're using object-oriented technology.

> **"The problem that Ashton-Tate had is that it wasn't a technology leader, and there were a lot of companies that were kind of following behind, and no one was taking the lead in language definitions, and taking the language into the world of object orientation, which really is the '90s way of doing things."**

Borland and Ashton-Tate have pretty substantially different corporate cultures. How crazy do you expect the culture clash to get?

Oh, I expect Ashton-Tate corporate culture to disappear. I expect Borland corporate culture to prevail. I have little tolerance for corporate overhead. Basically Borland's corporate culture is technology. It's technology-driven, and a leading organization. It's quite the opposite of the Ashton-Tate culture.

I think we've been very clear about that, when you look at sales per employee and everything—this is going to be a Borland structure, and a Borland way of doing things. Which is efficient. Which is led by technology, with rapid product revisions and solid development methodologies.

The no-BS approach. I know that might sound radical, but...

Something we're very proud of in this company is the way we won the J.D. Power survey. That, I think, is a very significant thing, because it is something you can't buy.

Word of mouth is the best advertising there is.

Exactly. And that's what the company's been doing. So when people ask me, "What's going to happen with the corporate culture?", I tell you. You look at us. We're #1 in the J.D. Power survey. We're not even allowed, in the ad, to show the position at which Tate was, because they rated under-acceptable scores. It's not the kind of corporate culture you want to inherit, if you know what I'm saying.

There's a very simple truth that we live by at Borland—rapport with our customers, and building quality stuff. It's the only way we've been able to compete with giants such as Microsoft and others. And that's the only way you can do it, because why would customers buy software from a smaller company if there's not an advantage? ■

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High-Tech Ventures

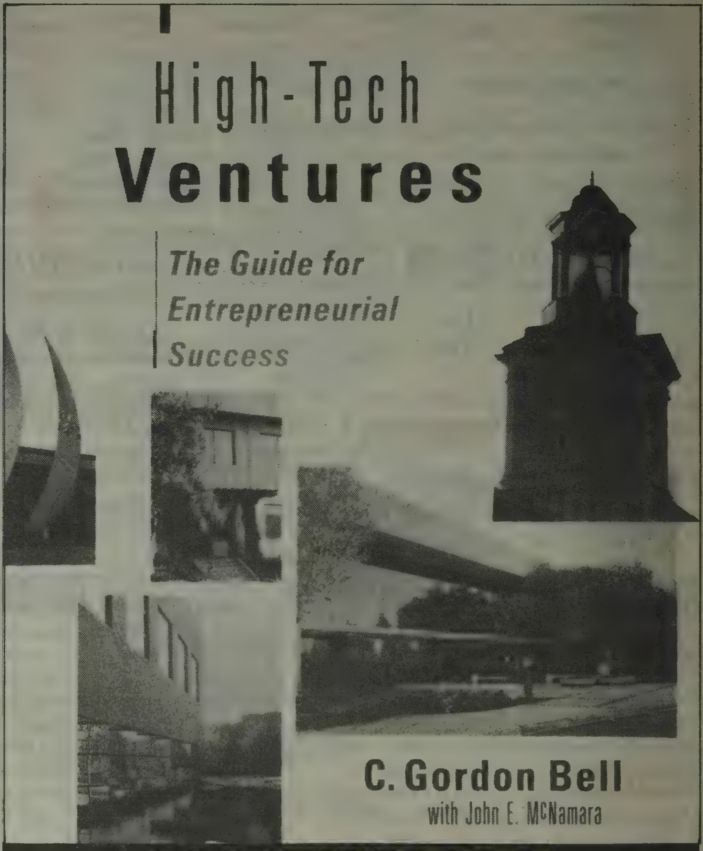
Financeability: Viability Through The Ability To Raise Capital

BY
C. GORDON
BELL

C. Gordon Bell, currently chief scientist at Stardent Computer in Massachusetts, spent twenty-three years at Digital Equipment Corporation as vice president of research and development. In the course of his career he's also been involved with several successful high-tech start-ups, including MIPS Computer Systems, Silicon Compiler Systems (now Mentor Graphics) and Silicon Graphics.

Drawing on this experience, he has written, along with John E. McNamara, an indispensable guide for anyone who's interested in the entrepreneurial side of technology, whether as a would-be company founder or as an investor. *High-Tech Ventures: The Guide for Entrepreneurial Success* offers detailed advice, checklists, and case histories, all designed to help keep a company healthy and on track through the concept, seed, product development, and market development stages, as well as the steady-state stage at which the company is stable, successful, and probably ready to go public.

In the following excerpt, Bell discusses criteria to meet and pitfalls to avoid in finding investors and investments.



BOOK EXCERPT

Nowhere is the expression "timing is everything" more applicable than in financing a new venture. The principal measure of financeability is the ability to raise capital in a timely fashion at a fair market value. Furthermore, raising capital in a timely fashion is not a problem that the start-up will face only once. Rather, it is an ongoing process, because the more successful the firm, the more additional capital it will need to sustain its growth. Even with continued and increasing profitability, a company's capital requirements will rise sharply, especially if it is operating in a capital-intensive field such as manufacturing (e.g. semiconductors or disks), in which large amounts of cash are needed to finance plant and inventory expansions.

Financeability is perhaps the most difficult dimension to measure, since it depends both on circumstances that are entirely beyond the company's control (exogenous factors) and on circumstances that the company can directly control (indigenous factors). The exogenous factors that affect financeability include the following:

- The condition of the overall economy, together with the apparent market for the firm's proposed product or service
- The number of competing companies engaged in businesses similar or identical to that of the start-up
- The financial community's current health and willingness to fund the business sector
- The desire of a given source of funds to be in a particular industry sector

The indigenous factors on which financeability depends include the following:

- The company's ability to operate according to its business plan
- The competitiveness of the products (i.e., the product position) and the likelihood of the firm's achieving its planned results
- The organization's ability to create a competitive market in which investors will find the company attractive
- The company's perceived intangible value, including any synergy with other companies in the investment portfolio
- The return that firm offers its investors on their investment

During any round of financing, the company's valuation is determined by all of the factors in the preceding lists, together with the vicissitudes of the negotiating process. The best way for a new venture to get a

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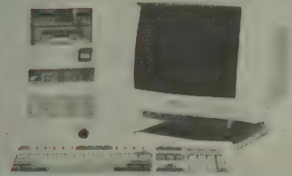

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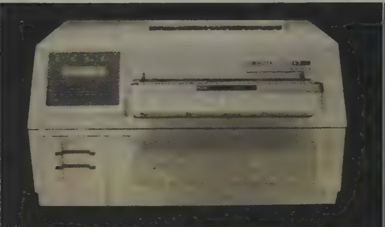
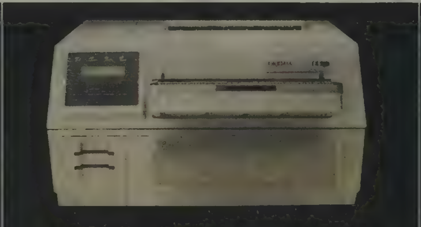
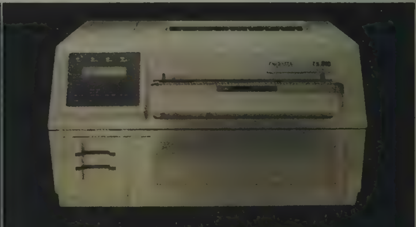
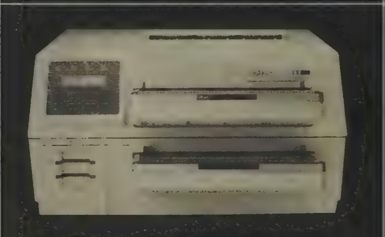
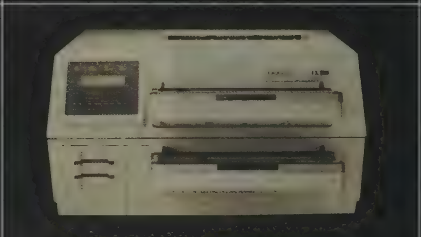
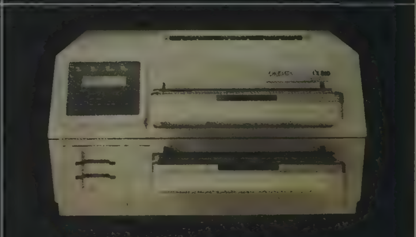

The OL800: 8ppm page printer $1499

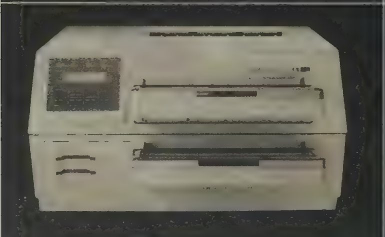

The OL820: W/built-in font scaling $1999

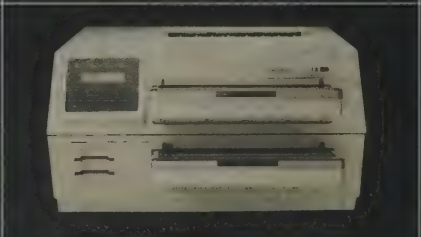

The OL840: W/PostScript $2999

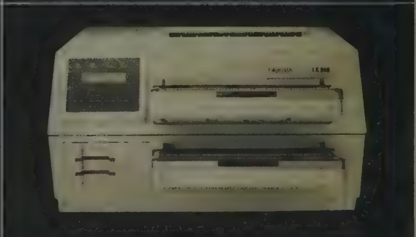

The OL800: W/200 sheet 2nd paper tray


The OL820: W/200 sheet 2nd paper tray


The OL840: W/200 sheet 2nd paper tray


The OL800: W/multi-user port (3 add'l users)*


The OL820: W/multi-user port (3 add'l users)*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high valuation is to offer investors a great company and then have lots of firms that want a piece of the deal, such that the offering is oversubscribed. Attracting a large number of buyers is also a good way to ensure that they are not illegally colluding to establish the price of the offering.

Two calculations are especially important in determining the company's valuation:

- The cost that was required for the start-up to attain its current position, compared with the cost required to finance a similar company to a similar point

- The expected return

The former calculation is critical, because if a company is founded on a great idea that is both simple to implement and offers a high expected return, other similar companies will probably be formed. (Remember Silver's [David A. Silver, *Venture Capital: The Complete Guide for Investors,* Ronald Press, John Wiley and Sons, 1985] axiom for the venture business: "Anything worth doing is worth duplicating.") The possibility of other similar firms being funded will tend to drive down the valuation of each of the individual firms.

The expected return is also an important consideration in valuation. It should increase in proportion to risk and will vary depending on where the company is in its growth process. Several books on entrepreneuring (such as David J. Gladstone's *Venture Capital Handbook,* Prentice-Hall, 1988) discuss the process of determining appropriate valuations based on the expected return. Although in the 1980s, venture capital firms average about a 22 percent annual return, the contributions of the various companies in their portfolios may vary widely. For example, Saratoga Venture Finance estimated that in a typical venture capital portfolio, only 10 percent of the investments were substantial winners, with 6 percent returning 50 percent annually and 4 percent returning over 100 percent annually. Winning investments such as these offset the investment in firms that go bankrupt (60 percent!).

Given these statistics, it is easy to see why venture capital firms need to pick as many winners as possible and avoid paying too much for either the winners or the losers. Silver offers some advice to assist these firms in valuing a company appropriately. He starts by looking at the firm during five risk periods—product development, manufacturing, marketing, management, and growth—while applying three laws of venture capital:

1. Accept no more than two risks per investment.

2. Valuation $= P \times S \times E$, where P is the size of the problem being solved, S is the elegance of the solution, and E is the entrepreneurial team; the S factor is further defined to be:
   $S = B \times T$, where B is the Business Plan, and T is the technology.

3. For companies where the above formula yields comparable results, invest in the big-P companies because the public market will accord them unreasonably high valuation, irrespective of S and E.

Silver looks at the following eight DEJ (demonstrable economic justification) factors in determining the value of S and P:

1. Existence of qualified buyers.

2. Existence of qualified sellers.

3. Homogeneity of buyers.

4. Large number of buyers.

5. Lack of institutional barriers to selling.

6. Word of mouth is principal form of advertising.

7. Optimum price/cost relationship.

8. Whether invisibility of the new company can be maintained.

In 1990, many entrepreneurs are saying that venture capital has turned itself inward and operates more like a bank, with venture capitalists being unwilling to finance an enterprise unless it has a proven operational prototype, orders in hand, and a guaranteed market. In fact, in the case of Gyration [a start-up with a revolutionary 3D pointing device], the venture community is unwilling to invest in what may be a breakthrough technology even though the company already has a bank line of credit to build prototypes.

SOURCES OF CAPITAL

Two major sources of capital exist: self-funding and external funding. Although self-funding is by far the preferred method, as Gateway and Microsoft have shown, if that approach is not possible, the company will have to seek a financial partner. To do so, it must establish criteria for a desirable partner and decide on a financing strategy; otherwise, it will waste a great deal of time searching for the "golden goose." The selling and final negotiation processes determine the terms for the "deal" with the start-up's financial partner.

Self-Funding

I strongly recommend some form of self-funding, if at all possible. Self-funding permits the founders to spend more time on their business plan and on product development without having to devote major amounts of time to wooing financial backers. Self-funding also fosters a strong sense of discipline with respect to spending control, shortens the time it takes to reach the market, minimizes extraneous marketing and sales overhead, and keeps the firm from being overly concerned with product elegance. On the one hand, a self-funded company does sacrifice some of the advantages that venture capital or other investors can offer. On the other hand, it avoids burdening the board with three or four venture capitalists who lack any understanding of the product or market—a surefire recipe for disaster.

Self-funding had been quite successful for a number of companies, especially software firms. One example is Dragon Systems. Dragon was founded in 1982 by Jim and Janet Baker and has become a leader in speech-recognition products. The company, which bootstrapped its financing without outside investment, is employee-owned, wholly supported by customer revenues, and net-profitable.

> **The founders should remember that the start-up makes a contract with every source of funds and therefore has a contractual obligation to succeed—an obligation that nonprofessional investors may take quite literally.**

External Funding Sources

Although the preceding subsection emphasized self-funding, and this chapter in general has focused on venture funding, there *are* other sources of cash, and all should be pursued with equal vigor. Richard M. White (*The Entrepreneur's Manual,* Chilton Book Co., 1977) presents a relatively large list of sources, including the aforementioned self-funding and venture capital options. The important sources, arranged roughly in order of growth stage, are:

1. The founders' savings, including borrowing on assets

2. Family and friends

3. Formal investment groups, including venture capital concerns and companies that specialize in the private placement of stock

4. Foundations

5. Grants and small-business loans from various government agencies, such as the National Science Foundation's SBIR (Small Business Inno-

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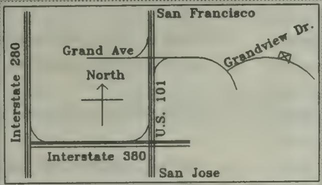

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6. Having the company's employees buy equipment and lend it to the firm

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8. Forming research and development partnerships with investment companies to do incremental development

9. University endowments

10. Large companies that enter into a venture-investment phase and pension funds

11. Strategic partners that are potential customers and want early access to the start-up's product

12. Strategic partners that are manufacturers whose products would be enhanced by the start-up's product

13. Strategic foreign investors that want access to technology, ranging from simple distribution to complete rights, through manufacturing

14. Foreign governments, companies, and banks that might be interested in building a local joint subsidiary to produce or market the start-up's product

15. Banking institutions that invest working capital based on firm orders

16. Equipment suppliers and vendors that may help a new company get started

17. Customers, including other start-ups, that may pay in advance for product or for a development contract (i.e., use someone else's venture capital)

18. Going public or being acquired by a larger, more cash-rich company

There are, however, some reservations that founders should keep in mind when considering funding from some of these sources. For example, funding from "family and friends" may be desirable during the concept and seed stages. However, these people will also be called on to provide emotional support during those periods, and it may be too much to ask them for their capital as well.

In the case of venture funding, it is common for venture capitalists to invest in companies that run out of money and to do so at prices substantially lower than previous rounds. These financing rounds are called "cram downs" or "washout rounds," and they have the effect of devaluing the previously issued stock. Even if the start-up ultimately succeeds, early investors are unlikely to get their money back. This possibility is another reason why it is critical for the founders to think twice about taking money from their family and friends.

The third funding source on the list—"formal investment groups, including venture capital concerns and companies that specialize in the private placement of stock"—also has its potential dangers. When it comes to securing funds, there is no such thing as "easy money" or "dumb money." The oft-written-about private placement specialists who obtain funding from doctors and dentists are seldom able to deliver either in time or on reasonable terms. Furthermore, many of these investors can be naive and dangerous. The founders should remember that the start-up makes a contract with every source of funds and therefore has a contractual obligation to succeed—an obligation that nonprofessional investors may take quite literally. Although when all is going well, as in the case of an initial successful financing, everyone is a friend, when things are *not* going so well, nonprofessional investors are likely to turn on the start-up and its founders. Naive investors tend to build up expectations based on hope rather than on the start-up's business plan. When the financial results do not live up to such inflated expectations, the investors conclude that the company has failed.

Finding a Financial Partner

If self-financing is not possible, founders might be well advised to consider reviewing the list presented in the preceding subsection with an eye to identifying financial-partnership possibilities, keeping in mind the cautions just voiced about family, friends, and naive investors. John Grillos has provided the following helpful guide to the selection process by listing ten attributes of a desirable partner:

1. Fits the financing model and strategy for the company

2. Has valuation expectations consistent with those of the current owners

3. Has resources to play its role in the strategy—i.e., has "deep pockets"

4. Has a philosophy that fits with that of the company and its current owners

5. Can aid in future financing

6. Has liquidity preferences consistent with those of the current owners

7. Can afford to take the loss if the business fails ([which] may rule out family and friends)

8. Is nice to work with and is likely to be with you when the chips are down

9. Understands the business

10. Can contribute more than just money: consulting, sales, contracts, board membership, joint venture and strategic partnerships

The incredible time demands of raising money clearly engender poor behavior and always prompt the firm to go after more money than is actually needed. This phenomenon is known as Kleiner's law: "When the hors d'oeuvres are passed, take two."

PRESENTING YOUR CASE TO A PROSPECTIVE FINANCIAL PARTNER

Almost every entrepreneur who finds venture capital funding advises that the first few contacts are a learning experience and that they will probably result in turndowns until the entrepreneur's story comes together. Mike Hackworth, former CEO of Signetics and current CEO of Cirrus Logic, notes:

"You have to tell the story of a company in the language of the business you're in. But it has to be done in such a way that the financial person can picture it. That means defining—up front—risks, milestones, and critical dependencies. The market content is more important than anything; the capitalists assume the technology is there. Further, investors are interested in getting to know you."

One way for the founders to plan, and subsequently present, a financing strategy is to pattern it after the strategies of successful ventures that have something in common with their own firm. In many cases, the people responsible for successful financing strategies are more than happy to talk about, and relive, their previous successes. Also, they are likely to want to invest in the proposed start-up if the founders can demonstrate that what they're doing now is similar to what the established company did earlier.

As for how long this process will take, the founders should be advised that financing is more complex and time-consuming than they ever could have dreamed. In 1990, the most optimistic scenario for a "perfect" company seeking venture financing is that it will take a minimum of three months from the time a preliminary business plan is available until the cash is in the bank. The amount of time required

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Funding becomes very complex in later rounds, when the terms for the liquidation of the company (it either fails, goes public, or is purchased), based on the current round and all previous rounds, are written into the financing.

HOW MUCH FUNDING AND HOW MANY ROUNDS?

The amount of funding and the number of rounds are very difficult to determine, since in each case, the total varies substantially between labor-intensive enterprises such as software companies and capital-intensive efforts such as disk or memory companies. Midway between these extremes is the computer systems firm. By 1990, a well-run, successful computer systems firm typically required about $50 million before it achieved profitability. Having $50 million to spend does not guarantee success, however, because many companies spent that amount (or more) but still failed. ETA (1983-1989) had an average of four hundred employees and probably spent on the order of $200 million before it was closed, having shipped a dozen supercomputers. Trilogy spent nearly $300 million and never could get its technology to work, let alone ship a computer.

For software companies, self-funding is best if the founders can manage it. In the case of small software projects involving a single team of five working for two years, only a few million dollars may be required from start to profitability. In the case of large software projects involving half a dozen teams of five, a minimum of $10 million may be required to reach profitability. In 1983, Lotus spent $6 million to launch its 1-2-3 spreadsheet and thus preempt competitors.

As for the number of rounds required, a company rarely achieves profitability with just one or two financing rounds, and the norm is more like three or four rounds. The funding model advocated herein assumes at least four rounds: seed; product development with alpha testing; beta testing until market calibration; and market development, including profitability until the steady-state stage is reached.

FINANCEABILITY FLAWS

When a company has trouble obtaining funding, it is often hard to determine whether the problem involves a lack of financeability or whether potential investors believe the firm is inadequate in one of the other dimensions, such as people, product, or plan. This section deals with the most common exogenous and indigenous flaws involving the financeability dimension per se rather than financeability problems that stem from a start-up's inadequacies in other areas.

One major exogenous flaw is a dearth of capital in the overall market caused by a lack of confidence in the economy, region, product, or market. For example, one large New York-based venture capital company has gone from having a third of its investments in New England in 1985 to having less than a tenth of its investments in that region in 1990. During the same period, in contrast, its investments in Silicon Valley have risen from a third to over half. Another serious exogenous flaw is the existence of a crowded product area in which the start-up is one of many "me-too" players.

One major indigenous flaw can arise when the company first starts up if the entrepreneur and investors cannot come to terms about a fair market value for the firm. Another major indigenous flaw can manifest itself in later stages when several rounds of financing have been required because the company failed to meet its plans; in this case, investor fatigue sets in, and the investors finally say "no." The firm is then closed, and its assets are sold.

A Dearth of Capital

Unlike most of the other flaws discussed in this book, having the supply of capital dry up is almost completely beyond the company's control. Rather, it is caused either by an overall economic shift toward recession or by a shift in investment strategies away from certain technology sectors. The result is that no funding is available, and the start-up's founders will just have to wait until a more favorable time.

An Overly Crowded Product Area

Like the dearth-of-capital flaw, the entry of too many firms into the product area is primarily the result of circumstances beyond a company's control. This problem is common, however, because lots of people often come up with the same idea at the same time. It should be obvious that entering the market with a "me-too" product under these circumstances is dangerous. Unfortunately, even entering such a market with a compelling technological advantage may be unsuccessful, since investors are often wary of a market they consider to be overcrowded.

As an example, I recently looked at a radical (yet simple) disk design that halved the number of parts required. Although building a radical new disk structure is risky, the cost advantage was quite compelling. Many firms, including current disk companies, had examined the patented design and felt fairly certain that it would work. Despite all these favorable factors, no venture capital company or industrial partner would fund the start-up. They wouldn't even fund a seed stage effort to examine the design in more detail, evidently because they felt that the disk field was already full and that it would therefore be impossible for the new product to take market share away from the entrenched leaders.

Failure to Come to Terms with Potential Investors

Although in a very few rare cases, the entrepreneur and investors feel equally pleased with the valuation placed on a company when a round is closed, the norm is for disagreements to arise over the firm's valuation. The line between fairness and exploitation is thin enough that such disagreements can stop the negotiating process, and a potentially profitable venture may fail to obtain funding. In most of these cases, the problem stems from the entrepreneur's having an overly inflated view of the start-up's value, and it's just as well that the firm doesn't form. In other cases, the entrepreneur goes on to self-fund the company and is better off without external funding.

Investor Fatigue Resulting from the Start-Up's Failure to Exhibit Integrity or Self-Control

The final flaw—a start-up's lack of integrity or self-control—brings us fill circle to a scenario dominated by indigenous factors. When it comes to financing, the combined advantages of luck, positive exogenous factors, and a good product can be totally counteracted by a company's lack of integrity or by its inability to control or sell itself. Once these shortcomings become apparent to investors, they can be expected to lose patience with the firm and withdraw their financial support.

FINANCEABILITY RULES

At any stage of a new venture's growth, the issue of financeability essentially boils down to the basic question of whether the firm got the financial support it needed in order to continue. The rules presented in this subsection are aimed at testing the start-up's financing readiness and its quality in the minds of potential investors. For example, it is critical to have the right experts "bless" the company. A knowledgeable expert's personal financial backing and commitment to spend time count for more than words coming from a paid consultant.

Are the present plan and people sufficiently compelling to facilitate capital for the seed stage (usually $100,000 to $1 million, depending on the company's scope) at the desired price level, and also produce a waiting list of additional investors who want to be part of the start-up round?

Getting financing for the seed stage is, by definition, the only real test of whether the concept stage has been successful. Independent of whether the company has obtained seed stage funding, the following two rules diagnose the likelihood of its achieving concept stage financeability.

Has the start-up gained the support of at least

Continued on page 208

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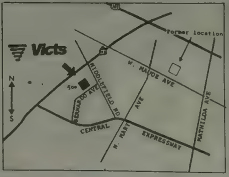

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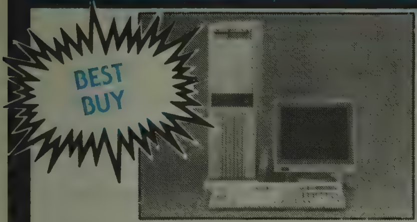

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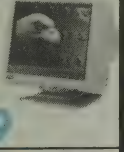

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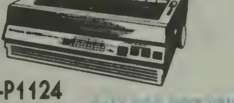

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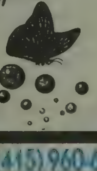

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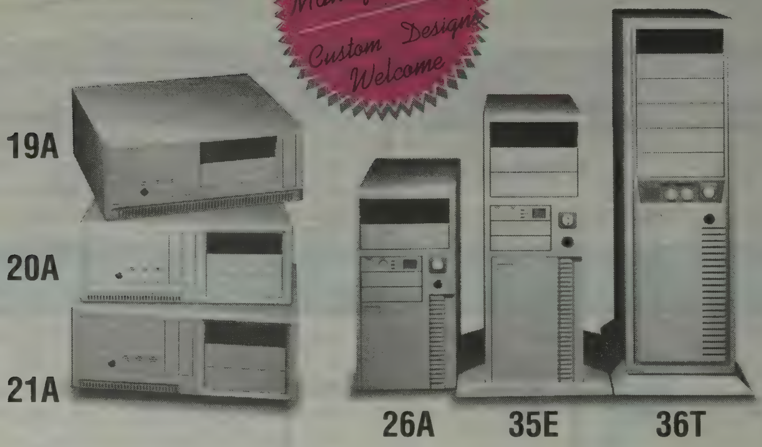

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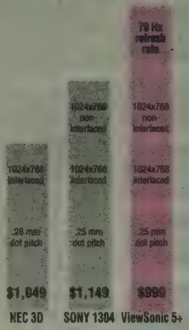

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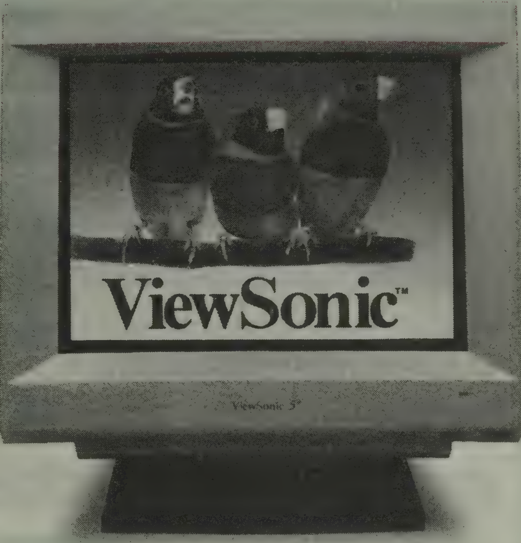

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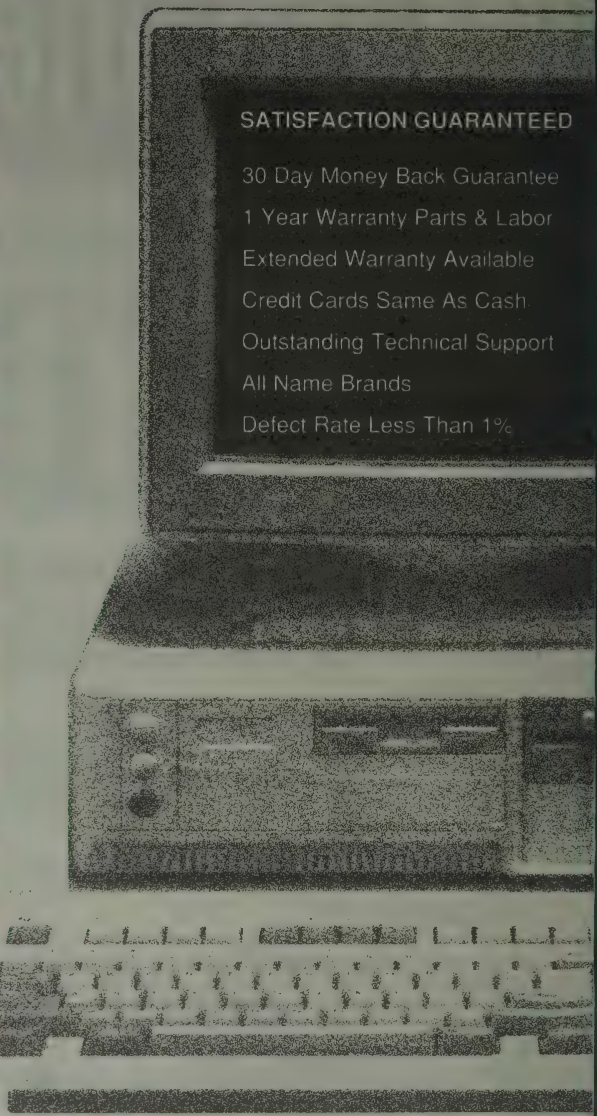

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Changing Strategies For Changing Times

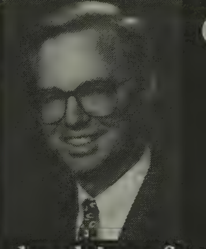
BY MARY EISENHART

"Most entrepreneurs at the seed stage aren't building something the market really needs, they're building something they want to build. So it's up to us to do the due diligence and determine whether this is something where 'if we pay them to build it, will they come?'"

—Ann Winblad

"The real question I always walk around with is 'Does anybody really care?' One of the reasons all this money got flushed down the toilet is that nobody asked that question. These were technologies that were elegant, but they were looking for markets."

—George Clute



George Clute, Olympic Venture Partners: "Clearly we're looking for markets with dislocations in them. Where there's chaos there's opportunity."

It's unlikely that the high-tech industry would have come so far so quickly without venture capital—the computer industry abounds with tales of early investors who saw the potential in what would become, say, Apple Computer or Lotus Development, and reaped a huge reward on a relatively small initial investment.

The basic scenario is something like this: An entrepreneur with brilliant and potentially lucrative ideas needs money in order to turn the idea into a product and/or a company. A venture capitalist has money to invest—sometimes his or her own personal funds, more often from a pool of money from individual and institutional investors, e.g. pension funds. If, after doing extensive technical and market research (a process known as "due diligence"), the VCs see promise in the entrepreneur's idea, they'll provide funding, usually in return for a certain percentage of the company's stock, the idea being that when the company goes public and/or becomes profitable, there will be a high return on the initial investment.

As the name suggests, venture capitalists expect a relatively high risk on their investment—broadly speaking, they expect to see no return for at least five years. And a high failure rate is typical—if a firm invests in ten companies, chances are that several won't exist in five years, several more will still be struggling along at the break-even or slightly-profitable stage, and, if the VC is lucky, one or two will be so spectacularly successful as to offset the losses of the others.

You don't have to be around the industry for long, though, before you start to hear the horror stories on all sides. Entrepreneurs complain that it's next to impossible to get funding and that the VCs want to control their companies. VCs, in turn, talk of entrepreneurs who seem to think that their investors are not profit-oriented businesspeople, but something more along the line of patrons of the arts. Even in good times, misunderstandings and bad feelings abound—and nobody is saying that these are particularly good times for the venture capital industry, especially compared to the halcyon days of the 1980s, where the most mediocre me-too products seemed to have no problem getting funded.

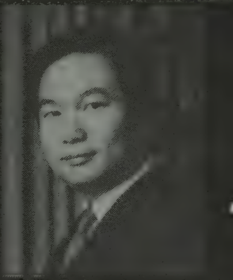
Says George Clute, a partner in the firm of Olympic Venture Partners, "This is a cyclical business. It has always been cyclical—the cycles weren't quite so visible before, because it was a very small segment of the financial industry until the early-to-mid '80s, when it experienced an enormous amount of popularity. Institutions were rushing to put money into it, because it was an asset class that they found, if nothing else, romantic; they were certainly attracted by the historical returns it produced. For example, in 1972-'73-'74, the industry might have been $1 billion in total, and now it's in the mid-$30 billions.

"In some cases, it was a greater-fool-theory game. A lot of people entered the business who were inexperienced, on both the buy and sell side. The institutions were, in many cases, not as educated as they should have been before they selected managers to run the money, and in many cases, of course, there were venture capital managers who were not experienced enough to truly manage the money well. So, in effect, they went to school on each other."

Says Hal Kellman, a portfolio manager and venture capitalist, "With most of the funds I've looked at as a private investor with several venture capital funds, the results and returns since 1983 have been absymal. Morgan Stanley published a study that showed that over the last 50 years, venture capital has returned 18% a year. Over the last one year, it's showed a negative 12.7% return. The last five years, negative 3.8%. The last 10 years, negative 3.4%. Since 1983, the venture community has returned less than a passbook savings account to the limited partners."

SADDER-BUT-WISER STRATEGIES

While there's been a certain amount of shakeout in the VC industry, and some firms have ceased to exist, most venture capitalists seem to agree that there's no particular shortage of money available. What's happening is that VCs in general are becoming increasingly cautious about where, when, and how they invest. Kellman, for instance, says, "I look for an open field, where someone's going to create a new industry, or something that's proprietary. In a public company, I have to be able to see where I can make three to five times my money in three to five years. In a private company, I want to make ten times my money in five years. If I can't realistically show where I'm going to project realistic sales and earnings for the company and the industry that will allow me to make ten times my money as a venture capitalist, I won't even look at it."



Jeff Tung, Xerox Technology Ventures: "Our job is like any other venture capitalist—we need to generate some return within some finite period of time, usuallly three to six years, for Xerox, so Xerox can show its shareholders that the money and assets it put in can generate some return."

Different sources cite different figures, but one clear trend is that it's next to impossible for latter-day Woz-And-Jobs-In-A-Garage types to get funded. While an entrepreneur with a proven track record might not have too much trouble getting capital on the strength of an idea, venture capitalists these days tend to defer their investment to much later stages in the company's development—some want a working prototype and a management team in place, some want actual customers buying actual product before they'll invest. Venture firms are also more specialized, and it behooves the entrepreneur to do a good deal of homework to find a good fit—crucial factors include the partners' background, other companies in the firm's portfolio, and plain old-fashioned compatibility. "The truth is we fund products and people, not just pieces of paper," says Ann Winblad of Hummer Winblad Venture Partners.

Clute agrees. He explains, "The first and foremost thing is we've got to like the people. We don't have to have something handed to us on a platter that has all of the right people in the right places at one time. We can collectively put our heads together and identify what the company needs to go forward, and build the team. Some people would call it 'distinctive competence'—we're looking for someone in the management group that has relevant experience in the market that they're trying to go after.

"Clearly on the product side we're looking for something with what we call an unfair advantage—something that on its worst day can outperform anything that it competes against by some factor."

EARLY-STAGE SPECIALISTS

Some firms, particularly those whose partners have strong technical and entrepreneurial backgrounds, specialize in concept and seed-stage deals, bucking the trend toward later and safer investment.

Dean Hovey of Avalon Ventures says his firm is most involved with seed or pre-seed-stage companies: "If a business plan already exists, it's probably too far along for us to get involved. We have historically started at least half of the companies because we believe it's time to do something in an area. The other half normally come from entrepreneurs that have been introduced to us through people that we've already done projects with, or through the typical network. Historically, we have felt that if you can capture the high grounds or the best minds at work in a specific technical area at the very beginning, basically you get the A team on your side, and you're not so concerned about what the rest of the players in the field are going to be doing." In pursuit of such projects, Hovey visits universities and research laboratories in search of ideas and innovators with an entrepreneurial bent.

Typically, Avalon will invest from $20,000 to $350,000 in a project, often on a loan basis. This enables the start-up to grow to the stage where it's attractive to more cautious VCs.

Another firm, Technology Funding, augments its venture capital operation with secured lending to start-up ventures. Explains general partner Cowsy Wadis, "The reason we discovered this niche is that banks usually are unwilling to take this kind of risk. Due to our venture capital orientation and venture equity heritage we understand this risk much better than others. If a loan were to get into trouble, instead of just calling it in or pulling it, we try to work towards an overall solution—with the company and its investors."(See sidebar)

An interesting variant on the start-up-nurturing approach is Xerox Technology Ventures, an independent VC firm launched in 1989. As Vice President Jeffrey Tung explains it, Xerox has become something of a byword in the industry for letting its great in-house technology get away—the Macintosh, Adobe, and 3Com all owe their existence to work done at Xerox's Palo Alto Research Center (PARC). In the late '80s, a book was published entitled *Fumbling the Future: How Xerox Invented the First Personal Computer, Then Ignored It,* and senior management decided that enough was enough.

Explains Tung, "We are an independently managed venture capital group operating under the umbrella of Xerox Corporation. Xerox has provided us with a fund of $30 million in cash, plus additional assets that may include hard assets or intellectual property. We basically provide the early-stage funding for technology and products that are either created inside of Xerox or controlled or owned by Xerox, but for whatever reasons, these technologies or products fall outside of the mainstream business focus.

"Xerox's research philosophy doesn't try to be too specific or narrowly focused. Their philosophy is that in order to attract the best researchers, they need to give them some degree of freedom and latitude to work on various projects in order to come out with innovations. As a result, not all research products or technologies can be readily applicable to their mainline business. The flip side is that Xerox does not use its legal department to oppress that activity—they don't want to sue their former employees.

"We hear about the 3Coms or Adobes of this world, but for each one of these, there are probably ten, or fifty, others that never made it out. These were the guys that had the perseverance, the entrepreneurial types that really carried it through and took the risks and went outside and got outside venture capital. So Xerox felt that it did not want to oppress these people; rather than fight them, why not join them?"

While XTV is too young a firm to have had any of its portfolio companies go public, some of them are already profitable (see sidebar). While Tung says that a public stock offering is usually the expected outcome of a company's evolution, sometimes the company might be acquired by a third party or reacquired (at fair-market rates and with the agreement of the smaller company's board) by Xerox. Like other early-stage firms, XTV nurtures the start-up venture to a point where other venture capitalists find it an attractive investment.

Says Tung, "Our target is that over the long run, after several rounds

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of financing potentially, Xerox would like to hold from 20 to 50% equity stake. Our job is like any other venture capitalist—we need to generate some return within some finite period of time, usually three to six years, for Xerox, so Xerox can show its shareholders that the money and assets it put in can generate some return."

Xerox Technology Ventures focuses exclusively on ideas that originate within Xerox (another group, Xerox Venture Capital, invests in outside ideas that tie in well with Xerox's own business focus). Currently this is still relatively rare among corporations, though Tung says AT&T has recently founded a similar firm to incubate projects that originate at Bell Labs.

HOT TECHNOLOGY AREAS

It is still possible for start-up companies to get funding, but the wise entrepreneur will focus on areas where venture capitalists see promising (and preferably undiscovered) markets. In general, for instance, VCs are currently bearish on hardware. Says Hovey, "The only hardware projects that we're working on have a tremendously high software content in them. It seems to us that with any projects that you now do, it's difficult to get a good margin structure on a purely hardware product, but if you have the value added of a significant amount of software, then you can get the kind of multiples you need to build a start-up from the ground up.

"For example, I would not invest in a raw disk drive start-up, whose goal was to build another Conner Peripherals. But I might invest in a team that has a new way of thinking about disk drives, and partner with some other folks to bring that technology about. That would not necessarily be high on my list—I personally like software as an area for investment."

Ann Winblad, whose firm invests exclusively in software, notes with some concern that there's a veritable feeding frenzy in software investments right now: "We're finding that a number of the small products—versus companies—that we turn down are getting funded. We're going to have a whole bunch of living-dead companies out there. How many drawing packages do we need? How many word processors do we need? How many multimedia authoring packages do we need? How many pen-based computing development environments do we need? We don't need very many of each of those. It's a very good time for software companies to raise money.

"However, they should really seriously think about it—if they're getting turned down by the premier venture capitalists, they should really think twice about historically non-software investors coming in to fund them, becuase it's like a royal wedding—you cannot divorce your venture capitalist. You can try living in separate houses, but it just doesn't work."

Pen-based computing applications, networking products, and office automation innovations are also cited frequently as attractive investments. Wadia says, "Pen-based computing and the whole area of connectivity are very interesting to us. Wireless LANs and those sorts of things. Multichip modules are interesting. Graphics are interesting, and multimedia may become interesting. We're definitely still interested in vertical market software applications. We are also interested in applications that make the paperless office work. Of course besides computing applications, environmental and medical and health science opportunities are all of interest."

Ah, multimedia, the buzzword of the last few years. Clute explains that the potential is real, but that the opportunity is on the content side rather than the tool side: "There has been a tremendous amount of investment in multimedia by all the major consumer electronics companies and the computer companies, to make it happen. That investment is not going to stop, it's going to continue, and the hardware will be able to do this.

"The real question is: 'So we've got the hardware, what are we going to do with it?' The answer lies squarely in the realm of the software that will make multimedia happen. From that perspective, you have to look at multimedia as a two-portion business: One is the tool business, which creates the multimedia, which will be small. The larger business will be what we call the content business, which conceivably can be very large. In twelve to eighteen months, we are going to be seeing the first round of multimedia-capable players, probably coming in more on the entertainment-games side than on the computer side. What we need to do today in content is to exploit the medium of capable installed-base machines with the knowledge of what will be coming in the next two to five years."

SO YOU'VE GOT A GREAT IDEA—HOW DO YOU GET FUNDED?

The venture capitalists we spoke with emphasized the value of homework, connections, and sweat equity to the fledgling entrepreneur. Says Winblad, "First of all, they should get introductions to venture capitalists via influencers. If one of the CEOs of the companies I've previously funded calls me and says 'These guys look like they've got something really good. Take a look at them,' that gives you a little bit of an early start from the hundreds of plans and faxes and phone calls and email that are sitting around on every venture capitalist's desk.

"Then you have to find a way to communicate your message very clearly—I don't think anyone gets funded if their business plan just lies around. You really have to find a way to get in front of the venture capitalist.

"You should also try to figure out very quickly whether you have a chance, and if you get a no from the first five venture capitalists that you talk to, you should find a way to get the company going with sweat equity—roll up your sleeves and just do it—or seek a small amount of private funding from some individual. You have much more clout in the venture community if you come in and you've already gotten started somehow."

HOW TO AVOID BECOMING A HORROR STORY

Venture capitalists advise entrepreneurs to find compatible investors and deal with them candidly in order to avoid catastrophe later. It's also important to reach a shared understanding early on, and to maintain good communications.

Clute says, "The equation is pretty simple. Do what you say, tell everybody the good news and the bad news—in other words, be a real partner with somebody. There's no such thing any longer as sugar-coating the investors, because most of us have been beaten up too much to not understand when somebody's doing that. If at all possible, minimize the amount of capital you need to make it happen."

Winblad emphasizes pitfall-awareness: "They have to realize that they should be profit-driven early on, and if they're not achieving profits—meaning that it's costing them too much to sell or market or build their product—that those are probably symptoms of a few things. It may be a symptom that they are being missionaries in the market, that they have to pay to educate the entire market. That's very difficult for a start-up to do. They should question whether they should spend so much money productizing when the market is not ready to receive the technology.

"The other thing they should look at if they're not profitable is 'Maybe I'm overbuilding the product.' Many young companies are really guilty of building a Release 2.0 product for the first thing they deliver. They forget that the only people who really know what

RESOURCES:

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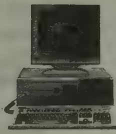

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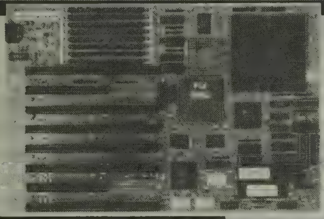

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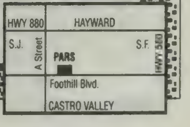

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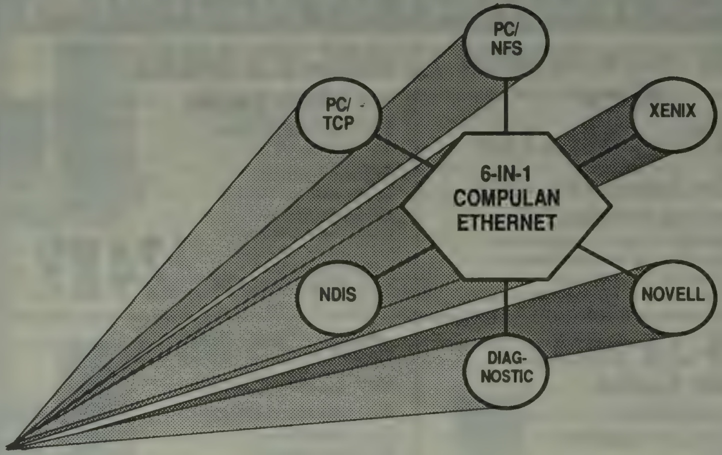

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should be in a product are customers, and that they should not overspend on the first release of the product."

Wadia tends to see the shakeout in the industry as a positive force—learning from experience, both VCs and entrepreneurs have developed more realistic expectations. Consequently, he says, start-ups who do their homework and have ideas with an edge will do well, as will their investors. He says, "I don't see any problem right now of good ideas put together with good solid people not finding capital. We have enough capital for investment at various stages. We have been very selective in our investment process, and I think the venture capitalists who have some funds in reserve are going to make out pretty well in the next few years.

"Venture capitalists have learned a lot. Entrepreneurs are learning a lot. It's going to be tougher to build successful companies, but the whole process is becoming mature. Maybe there are fewer opportunities because of that, but at least people are making fewer mistakes and having realistic expectations." ■

Case History: The Restart

As venture capitalists become more conservative and invest in later-stage companies, some of them are looking with increasing interest in once-promising companies that have fallen on bad times as a relatively low-risk, high-return prospect. "Sometimes companies could have all the right ingredients and just not happen," says Cowsy Wadia of Technology Funding. "I am aggressively looking for such opportunities, within our portfolio as well as outside, because in my opinion the risks are much less if the restart has those particular characteristics we look for. We can take the base which is already there, we can get rid of some of the mistakes which have been made, and we can develop new products and new technologies based on that.

"We think the risk/return profile on restarts is much better. First of all, they will require less capital to become successful. A seed-stage investment could take five to seven years, and a lot more capital. So if you take the time value of money and the amount of capital, as well as how much equity you'll finally own, working on a restart may be much more profitable.

"But," he cautions, "it requires a lot more work."

A case in point is Carlyle Systems Inc., which makes library automation systems. It was a promising company whose product, TOMUS (The Online MultiUser System) was the catalog software of choice in many university and public libraries worldwide, offering a sophisticated tool to trained librarians and ease of use to the naive user.

Continued on page 210

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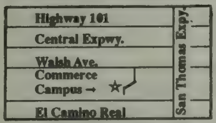

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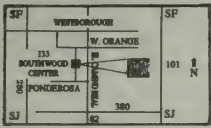

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The Software Entrepreneurs' Forum

A Silicon Valley Start-up That Provides The Connections And Information To Help Software Developers Succeed

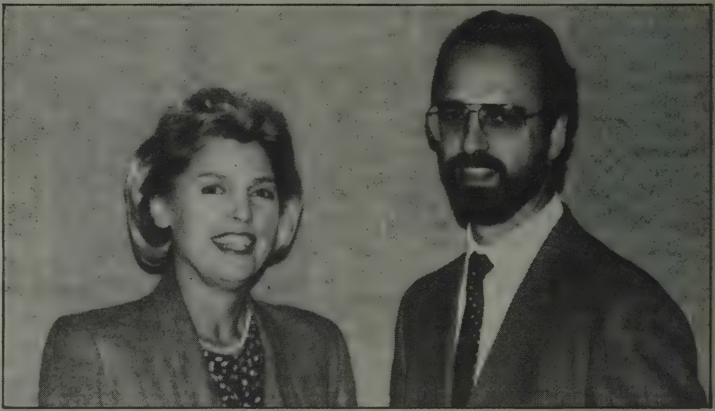
BY MICHAEL ROBIN

From its quiet beginnings in 1983 with fourteen people who had a dream, The Software Entrepreneurs' Forum, also known as SEF, has grown into a seven hundred plus member organization. SEF's mission is "to provide information to software entrepreneurs about the resources needed to sell software products and services."

SEF works hard to assist its members in achieving success by providing an atmosphere and organization where members have an opportunity to share information, establish business relationships, and learn from others in the software industry. Its members are united by a desire to acquire and share the necessary tools and knowledge to develop products and businesses on their own terms. As SEF has grown, so has its influence throughout the software industry and, in particular, Silicon Valley. Many large companies have begun to view SEF not just as an organization of industry hopefuls, but as the place to watch for innovation and potential competition.

STARTING UP

The idea for The Software Entrepreneurs' Forum began with a group of software entrepreneurs who met during a Bay Area seminar called "Marketing in the '80s," presented by the Professional and Technical Consultants Association (PATCA). Led by a panel of eight software developers and investors, the seminar addressed different aspects of software development and marketing. It quickly became clear to the group of hopeful entrepreneurs that success in the software products industry takes more than good programming skills. Good documentation is as important to success as are the features and speed of the product. For the start-up business, there is a great need to learn about packaging, production, market research, distribution, advertising, financing, and many other issues; but there are very few places to go to acquire this knowledge. Following the PATCA seminar, the entrepreneurs decided to form an organization dedicated to exploring these and similar issues.



SEF executive director Barbara Cass receiving a donation from Jack Blount, Novell's executive director of strategic relations.

The founding organizational meeting was held on October 11, 1983. Its first general public meeting was at San Jose State University a week later, on October 17. About eighty people attended to listen to Richard Dalton, editor of *The Whole Earth Software Catalog,* speak on what's wrong with the software industry.

FROM "START-UP" TO SUCCESS

"A fair amount of the efforts in the beginning," says Ed Niehaus, past president of SEF and founder of Niehaus Public Relations, "had to do with the early Macintosh programs. The Mac was easy to use, but not that easy to program for. Although Apple was helping all it could, all these programmers were sort of on their own. They came up with the notion that if their products don't compete with one another, why not band together and see if they could help one another. It quickly expanded into other kinds of help as well, and pretty soon grew into an organization that had regular meetings, and developed some special interest groups."

SEF grew quickly from its original fourteen members, to two hundred by 1985, and over seven hundred in 1991—and they expect the membership to reach one thousand during the coming year. In many ways SEF is similar

As SEF has grown, so has its influence throughout the software industry and, in particular, Silicon Valley. Many large companies have begun to view SEF not just as an organization of industry hopefuls, but as the place to watch for innovation and potential competition.

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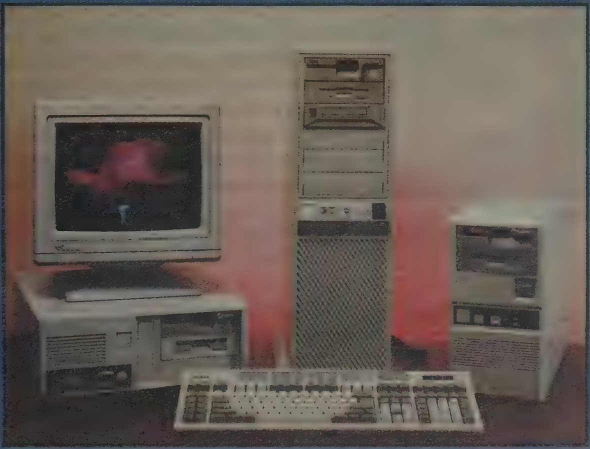

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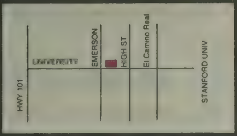
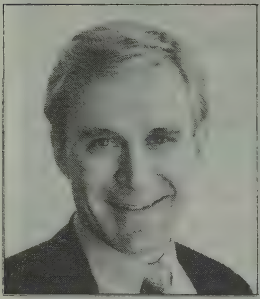


to the start-up organizations it was created to help. While experiencing swift growth in a dynamic industry and volatile economy, it works hard to remain true to its mission and serve its market.

An important part of this success is tied to keeping an ear open to its members. According to Alan Cooper, SEF board member and president of Cooper Software, while SEF has become a forum for a broader cross section of the industry, it remains true to its entrepreneurial roots. As the industry has gotten bigger and more professional, so has SEF.

Alan Cooper

Although over 50% of the members are active professional programmers and technical people, SEF members now draw from a much larger pool. It is no longer just a group of programmers with a dream. In addition to technical people who may already have a company and others who would like to start their own business, SEF members include marketing, advertising, and public relations people; consultants; and individuals from the larger companies throughout Silicon Valley. There are many people in the software industry who view SEF as a window to what is happening and where the industry may be heading.


Ed Niehaus

In addition to individual developers from the established companies, such as DEC or Hewlett-Packard, the companies themselves have begun to recognize the significance of SEF. In 1990, Novell became a SEF Industry Benefactor with a $5000 donation. This grant has given SEF flexibility to present additional seminars and expand its educational program for the benefit of people with small start-up companies. Some, like Cooper, are beginning to believe perhaps SEF should change its name to SIF, The Software Industry Forum.

WHAT SEF DOES

Active SEF members lead a busy schedule. Regularly there are nine organizational events each month—a dinner meeting with a guest speaker and eight SIGs. There are also a growing number of all-day seminars.

The monthly dinner meetings have recently been moved to the Palo Alto Elk's Club to provide a larger space for the growing crowd. The dinner meetings are well attended and never disappointing. Since SEF is not a user group, it does not get product pitches for the speakers. Rather the members get useful insights from industry analysts, and from industry entrepreneurs such as Pete Peterson of WordPerfect, Mitch Kapor of ON Technology, Ray Noorda of Novell, and Bill Gates of Microsoft.

Stephen Friedman

In July, over three hundred people attended to hear industry analyst Esther Dyson present her view of what the future of the software industry might look like and what developers might need to consider to succeed. She reminded software developers that someone else is creating the environment in which they operate. The future products, or "vaporware," she discussed included scripting, CASE libraries, email, and "objects."
[see sidebar interview with Esther Dyson]

Alan Cooper finds himself taking notes at these presentations and quoting the speakers in his own presentations and business dealings. He, like many others, regularly attends these dinners, even when he thinks he isn't that interested in the speaker. He has discovered that the meetings are always interesting and informative.

As the industry develops, some special interest groups are discontinued, others reorganized and combined to offer a more appropriate focus, and new SIGs have been formed. The Engineering Software and Educational Software SIGs, for example, have been discontinued, while the establishment of a UNIX SIG reflects the growing market demand for "shrink-wrap," ready-to-use UNIX applications. The newest group is the Expert Systems SIG, and there is already some discussion about a Pen-Based Computing SIG.

> **"For us [SEF] was a whole world of contacts and information that helped us dramatically in our venture and allowed us to be successful with a much smaller investment of time and money."**
> **—SEF President Steve Friedman**

The Windows special interest group, WinSIG, was launched earlier this year after Cooper approached several people in the organization, including Executive Director Barbara Cass and the PC SIG chairman Mike Schmit, about it. "They rolled out the red carpet, providing a tremendous amount of support to create WinSIG," says Cooper. "It is now one of the most attended and active SIGs in SEF."

Acting as the chair of this special interest group has placed Cooper "like a spider in the middle of a web. So much of the Windows activity in the industry passes through my office, providing new contacts, visibility, and credibility." It helps keep members of the group on top of what is happening, and helps give them an easy way to stay in touch with others in this community. Members are more likely to return phone calls and take the time to help each other just because they are both members of SEF than if they had no connection.

SEF also maintains an ongoing program of legislative monitoring, information, and representation. Working with other organizations, such as the Software Services Association and Software Publishers Association, SEF members help to analyze related potential legislation and organize to express a coordinated industry position. Recently in New Jersey, the legislature began to discuss licensing for software developers. It is envisioned that SEF members will become involved in the development of a policy on self-regulation and/or keeping a common standard across states if legislation is enacted.

BUILDING BETTER BUSINESSES WITH SEF

Networking is what members of any trade organization look for. Informal discussions provide ways to meet others, and to learn from their experiences. In addition to the formal aspects of the monthly meetings, special interest groups, and seminars, SEF provides an

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386SX/20 Super VGA	$929	$1,029	$1,079	$1,104	$1,354
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386/25 Super VGA	$1,049	$1,149	$1,199	$1,224	$1,474

HRW Tower Systems w/Cache

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486s w/External 256K & Internal 8K Cache

Standard System · Tower Case · Hard Drive · Monitor & Video Card

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A386/40C Hires	$1,474	$1,499	$1,749	$2,399	$2,899
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Standard Desktop System Features plus:

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RESOURCES

Membership:

SEF's annual individual membership is $95, company membership is $250, which entitles members to participate in the Forum's special interest groups and to receive the newsletter. (Subscription for only the newsletter is $25, for international delivery, $40.) The monthly meetings are held at the Palo Alto Elks' Club, 4249 El Camino Real, Palo Alto. Each meeting starts at 6:30 pm with a no-host bar, followed by dinner at 7 pm, and the speaker's presentation. Call: Barbara Cass, SEF Executive Director, (415)854-7219. MCI Mail: 316-2817.

Special Interest Groups:

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important networking atmosphere. The tale of SEF President Steve Friedman and Software Partners is by no means an isolated SEF success story.

Friedman and some of the other Partners met at a Marketing SIG in the spring of 1988 and went on to form the new company. "For us," says Friedman, "it was a whole world of contacts and information that helped us dramatically in our venture and allowed us to be successful with a much smaller investment of time and money. When we went looking for market opportunities we talked to people who'd been in the marketplace with products similar to ours and found out what they had done to become successful or what they had done that didn't work. We learned that catalogues were an interesting opportunity, and learned which catalogues were the right ones and which ones weren't. We learned how advertising could impact our business—a young company with an unknown product. We learned about how to do direct mail to solicit software sales, we learned about distributors and their behavior.

"We learned all this just because we knew people in the organization, because they were willing to talk to us, because they knew we were SEF members. They weren't strangers to us. We may not have known them very well, but they knew we were members of the organization and they were more than happy to share their experiences with us. For a lot of members that's really where it happens. Not so much a meeting, or a series of meetings, but the people you meet at the meetings, the information that is presented at the meetings, the discussions about that information is interactive between the speaker and the audience. Knowing people in the software industry that you can turn to and say, 'Hey, how does this work?' or 'What do you think about this idea?'

"Not everyone in our organization are entrepreneurs, many are members of larger companies and they certainly want to know more about the software industry and how to market their product more successfully. The commonality here is how people become successful developing and marketing a software product, not necessarily how successful people become starting companies. (Although many of our members are start-up's and they are truly entrepreneurs.) They might be people who work at Hewlett-Packard, or Digital, they want to know more about the market. Where do you go? There is no place else. Software Publishers Association is in Washington, D.C., and they are a very different organization. Beyond that there isn't anything else."

Software Partners recently sold the rights to its product, Time$heet Professional, the network version, and its companion product that allows data exchange to several of the popular project management tools—Microsoft Project for Windows, Timeline, etc.—to Timeslips Corp.

FACING THE NEXT DECADE

"The organization is growing rapidly," according to Friedman. "We are concerned that we will continue to serve the members not only as our membership grows and the complexion of our membership changes, but also because the industry changes all the time. The

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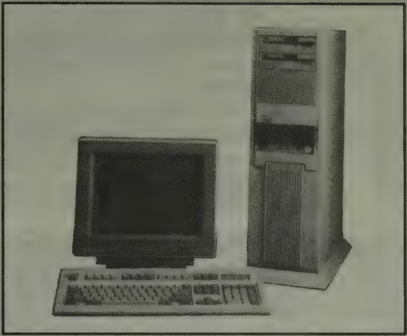

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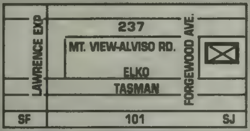

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things we were able to do for our members last year or two years ago, may or may not be the appropriate thing to do today. Certainly, what we did two or three years ago is just not enough."

"We've tried to focus on strengthening our offering of SIG meetings. We've started a UNIX SIG, that's a result of market changes. We try to keep up with where the market goes. We try to be on the top of the changes in technology.

"We continue to talk about what we could do. A SEF member can come to a dinner meeting and at no charge sit down and ask an attorney questions, spend half an hour with an attorney specializing in a particular area of software law. That's something new that has just begun. We're experimenting with that. Maybe we will have people every meeting that are experts in marketing, finance, and law speak to the members on an informal but dedicated basis. We believe that might be something our members would appreciate."

The seminars are another part of this picture. SEF has a goal of at least four seminars a year, with the possibility of having six. Recent seminars in Marketing, Printing, and Technical Documentation were all considered very successful. There are plans for a Pen-Based Development seminar to be held on November 23, a Patent/Copyright seminar in January, 1992, and a Marketing Marathon seminar scheduled in March, 1992.

"We are concerned that we will continue to serve the members not only as our membership grows and the complexion of our membership changes, but also because the industry changes all the time."

The program for the Pen-Based seminar will include a discussion of the pen-based software market, both customer and product niches; Pen-Based Development environments, Go PenPoint, Microsoft Pen for Windows; Slate PenApps, and Computer Intelligence PenDOS; Pen-Based User Interface Concepts, what works and what doesn't.

SEF offers its members a community of like minded people, and acts as a facilitator for their learning. "When you are out there marketing products," says Friedman, "if you've never been there before, or even if you have, it's difficult to see things that others before you have seen. That's really what SEF has meant to most of us" and what it intends to provide for software entrepreneurs in the future. ■

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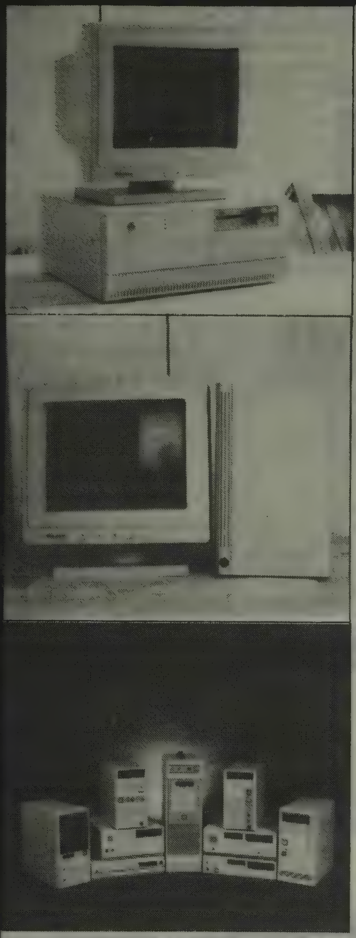

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Esther Dyson On SEF, Industry Alliances, Email, And Other Topics

Speaking at the July SEF meeting, Esther Dyson noted that "what people want, is to communicate through their computer" not *with* their computer. Users might want to communicate through their computer to an application, to program it, or with another person. In the '90s as computers become more powerful and user demands increase, successful developers must not only stay informed but must also continue to reexamine their strategy. As Ms. Dyson was traveling through the Bay Area she took a few minutes to speak with *MicroTimes*.

How do you see SEF helping members over some of the barriers to success?

What it mostly does is help create a community so people don't feel they're on their own; so they can share resources like the name of a good lawyer. Since not everyone knows everything, they can pool their talents to work that much better. In a large company, you have all that talent in-house. In a small company, it's really great to share these resources.

What does the current wave of hardware alliances mean for developers and end-users?

Most of it is a lot of hot air. You cannot build product for an alliance. You can only build for a real platform. This means life is confusing, and that it will remain confusing.

Looking back, are there particular company successes or failures that have surprised you?

I usually tend to be surprised on the optimistic side about technology. I am like a developer that forgets how many problems they meet on the way. A lot of things I believe in come true, but a year or two later. And sometimes things take longer to go wrong, like Oracle. Overall, I always think things are going to happen faster than they do. It's the same for software developers.

Flying here (San Francisco) I thought, we can really learn things from the airlines. If an airplane leaves on schedule, you usually arrive early. The airline has learned to really hedge their bet—they have built-in a fudge factor. The software community hasn't done this.

Is multimedia just another buzzword, or is it something developers need to pay attention to?

It's real. Like other buzzwords, the ratio of hype to market size is probably too high at this point. In the long run, however, probably the best test for multimedia is that the Bell Companies might be allowed in to provide services. Whether the Bell Companies end up getting this right or not, it's going to focus a lot of attention on electronic information services.

The Bell Companies will be saying, "Oh, please, please. Let us do it." Think of all the great things they can do. There are already ads out saying "We could do this, but the regulations won't let us." And at the same time the newspapers and the cable TV companies will be saying, "Please keep those awful telephone companies out. If you do, we will enter the market." You are going to get a lot of people on both sides of this particular argument promoting the capability (to provide multimedia services). This will help create pressure from the customer to deliver.

During your recent address at SEF you discussed several product areas to be aware of for the future. You mentioned email...

I think it is the foundation for the way things are going to happen. Where do you get the information from, and where do you send it to?

Any time you put information on paper, it becomes dead. Email and wide area networking is a way of keeping the information alive. If I send it to you over email, you can manipulate it at your end; you can see the multimedia stuff happen, or you can execute spreadsheets, for example. It's just really stupid to send information on paper. The information is much richer and has more content in email.

What can a developer do to improve their chances of success?

To be smart, to hire very good people. To be honest, to have a good reputation. It's to do what you know you should do.

We've had the *Bible*, the *Torah*, the *Koran* for thousands of years. It's not a question of knowing what to do. It's a question of doing it. You can actually say, well it's really a matter of interpreting the *Bible*. But the point is that what to do isn't very mystical. Developers may need to be smart about strategy. But, unfortunately, being smart about strategy is a very different skill. I see more companies fail because they go after too many opportunities. ■

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Investment From The Pacific Rim

International Conferences Present Opportunities For The US Entrepreneur

SOURCES 1991

Santa Clara Convention Center
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By Murali Gometam

While the downward trend in US venture capital funding continues, there is a clear increase in investment by Asian sources in emerging companies. The upcoming SOURCES 1991: Conference for Asian Financing and Funding will attempt to promote introductions between Asian investors and American entrepreneurs/organizations, as well as facilitate the formation of investments and alliances. The conference is sponsored by the Asian American Manufacturers Association (AAMA), a nonprofit organization dedicated to promoting the success of US high-technology manufacturing and related enterprises throughout the Pacific Rim.

> **George Koo, SOURCES 1991 conference chairman: "In general, Asian investors look for technology and market niches. They are more likely to develop new businesses that involve technology infusion, or maybe cross-licensing, than to fund raw startups."**

AAMA president Pauline Lo Alker points out that in addition to entrepreneurs and startups, US-based venture funds are also looking for investment from Japan, Taiwan, Korea, Singapore, and other Asian countries.

Compared to US-based venture capitalists, Asian investors are less return-on-investment (ROI) oriented; rather, they take a business development approach to alliances and investments. "Do not think they are passive investors out here waving bags of money," warns George Koo, SOURCES 1991 conference chairman. He adds that unlike some firms in the US, these investors are not always eager to obtain controlling interest in a company, but rather prefer minority equity investments. "In general," he says, "they look for technology and market niches. They are more likely to develop new businesses that involve technology infusion, or maybe cross-licensing, than to fund raw startups."

Increases in Asian capital and interests are all part of an overall trend toward globalization. The rapid growth of local economies in Japan, Taiwan, Hong Kong, Singapore, and Korea is well known and chronicled. "Over the years, their small populations have reached

Continued on page 107

ALLIANCE '91

December 2–4
Royal Park Hotel, Tokyo

By Mary Eisenhart

George Hara, chairman of the Alliance '91 conference, entrepreneur, engineer, CEO of an international network-products company, venture capitalist, and member of various boards of directors, is in a better position than most to understand the rewards and pitfalls of US/Japan ventures. At the moment, in his capacity as a member of Borland's board, he's working on the problem of merging the international operations of Borland and Ashton-Tate, and notes that in his native Japan the perception of the two companies is considerably at odds with the US version.

"Ashton-Tate launched its Japanese operation in 1983. That is the same year when Borland USA was founded," he explains. "So Ashton-Tate has a much longer history in Japan, and the name is more recognized. In the database area, dBASE has substantial market share. So even though the fact is that Borland acquired Ashton-Tate, many people in Japan are thinking the opposite—that Ashton-Tate acquired Borland." Until the spring of this year, Borland sold only its language products in Japan, but in a few short months Paradox has garnered sales of 4–5000 copies per month there—excellent market share, considering that the entire PC database market there is about 30,000 copies per month.

> **Alliance '91 chairman George Hara: "Philippe Kahn's concern about quality really fits with the Japanese way of thinking, and he requires his people to respond very quickly to problems and questions raised by users. That kind of attitude works very well in Japan."**

In addition to the usual problems that attend mergers, this one raises cultural issues beyond corporate culture. Says Hara: "It's important to have Ashton-Tate Japanese management spontaneously want to convert their culture into the Borland culture. Anything with compulsion doesn't work well. So I think what I'm going to do is explain Philippe's philosophy and my way of thinking about entrepreneurship, and our view about the next century in the world.

Continued on page 107

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AT Terminal like case w/70W power supply	$65
AT Slim-Line (PS2 model) w/200W power supply	$80

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AT 286 12MHz main board (Chip & Tech Chip set)	$75
AT 286 16MHz main board	$90
AT 286 16MHz main board (Solution)	$120
AT 286 20MHz main board (Solution)	$150
AT 386SX 16MHz main board (LEO)	$200
AT 386SX 16MHz main board (Intel Chip set)	$200
AT 386SX 20MHz main board	$230
AT 386SX 20MHz main board (LEO)	$230
AT 386DX 25MHz main board (SIIG)	$330
AT 386DX 25MHz main boardw/Intel CPU	$340
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AT 386DX 40MHz main board w/64K cache (Made in USA)	$500
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SIM modulers 4MB x 9 (80 nano second)	$200
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SIPP modulers 1MB x 9 (70 nano second)	$50

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AT 80287 10MHz math co-processor (AMD)	$90
AT 80387SX 16MHz math co-processor	$200
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AT 80387DX 33MHz math co-processor	$210

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- Socket for 80387
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286-16 MHz 0 Wait

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286-12 MHz 0 Wait

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- Landmark=16
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- Landmark=36.7
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- 2 Serial, 1 Parallel, 1 Game Port
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- Tower or desktop case w/230W power supply
- Maxi-Switch 101 Keyboard
- Supports MS-DOS, OS/2, Unix, Xenix

386-20 MHz......................$495

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386-SX 20 MHz

- Landmark=26.5
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- Chip & Tech. NEAT Chip Set
- EMS LIM 4.0 Built-In On Board
- Shadow RAM
- Page Interleaved Memory
- 1:1 HD/FD Controller
- Teac 1.2 or 1.44 MB Floppy Drive
- 2 Serial, 1 Parallel, 1 Game Port
- Tower or desktop case w/230W power supply
- Maxi-Switch 101 Keyboard
- Supports MS-DOS, OS/2, Unix, Xenix

$415

386-SX 16 MHz

- Landmark=23.5
- 1 MB Expandable to 8 MB
- Chip & Tech. NEAT Chip Set
- EMS LIM 4.0 Built-In On Board
- Shadow RAM, Page Interleaved
- 2 Serial, 1 Parallel, 1 Game Port
- 1:1 Interleave HD/FD Controller
- Teac 1.2 or 1.44 MB Floppy Drive
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- Supports MS-DOS, OS/2, Unix, Xenix

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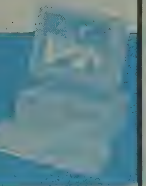

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Keytronic 101 Key	45
Maxiswitch 101 Key	45

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DTC 7280 1:1 FDC/HDC	65
DTC 7287 1:1 FDC/HDC (RLL)	75
DTC 6280 ESDI	135
IDE Card w/cable	25

Motherboard

8088 10 MHz	$65
286 6/12 MHz 0 Wait	95
286 8/16 MHz 0 Wait	135
386-25 MHz 0 Wait	325
386-25 MHz 64K Cache	400
386-33 MHz 64K Cache	420
486-25 MHz Motherboard	700
486-33 MHz Motherboard	775

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Western Digital 40 MB IDE (28 MS)	165
Seagate 157 A 44 MB IDE (29ms)	165
NEC 3142 (44/66 MB, 24 MS)	275
Western Digital 85 MB (18ms)	275
Seagate 1102 89 MB IDE (18ms)	275
Conner 100 MB	330
Seagate 1144 125 MB	355
Conner 30104 120 MB (18ms)	355
Conner 210 MB (16ms)	580

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387-25/33	199
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230W Power Supply	48
Window 3.0 w/mouse	73
Logi Hi-Res Mouse/Mouse Man	60/65
Logi Trackman Serial/Bus	85/90
DFI Mouse (3 Button, Micro Soft Compatible)	45
AT Deluxe Case	48
Mini Vertical Case w/Power Supply	75
Vertical Case w/Power Supply	145
Colorado 120 MB Tape Back-Up	265
DFI Memo 2000	85
RAM DIP/SIPP/SIMM	CALL

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Teac/Toshiba 3.5″ 1.44 MB	60

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Panasonic KX-P 1123/1124 W/Cable	235
Panasonic KX-P 1624 W/Cable	355

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Fax Modem (4800 FAX, 2400 modem)	95
Fax Modem (9600 FAX, 2400 modem)	115

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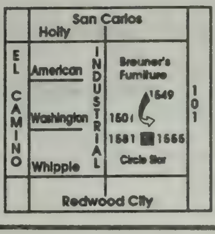

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DTK 486 dependability lets Lightspeed Corp. sell total solutions

Resellers are excited about DTK's line of 486 PCs because of their performance, dependability, and affordability.

"The DTK systems stand up, giving us the ability to include service agreements in our system sales," said Corky Deeds of Lightspeed Corp.

"We almost never need to service a DTK computer," Deeds related. The El Cajon, California, company especially likes the CAD and Lantastic® networking performance of DTK's 486 models.

DTK's traditional price/performance ratio means its resellers can compete with low-end products and still earn good margins. The combination of performance, dependability and affordability allows reseller marketing people to concentrate on solving their customers' problems.

Lightspeed's Sales Manager, Joe London, is proud of his company's approach; "We're not selling products at Lightspeed, we're selling solutions. DTK enables us to sell a total solution."

Users enthusiastic about DTK 486; Praise its price, performance, and compatibility

Whether they're using DTK's 486 for AutoCAD, large databases, or fileservers, computer users are telling DTK, "Well done!"

Two customers of Regal Computers, Inc., the DTK reseller in Rapid City, South Dakota, are lavish in their praise of the DTK 486.

Waste Energy Technology's Ed Cronin needed more computer power to manage his large databases. His decision to invest in a DTK 486 came only after he carefully compared several competing brands.

Cronin's response, after replacing his Northgate computer with a DTK 486, was a single word, "Fantastic!"

Clark Engineering, another Regal customer, needed more muscle for its AutoCAD installation. After analyzing available computer products, Manager Dan Abraham chose the DTK 486.

Regal president Jim Van Loan says his company's emphasis on DTK's 486 line is contributing to his firm's rapid growth.

"It's simple," Van Loan explained, "for performance and compatibility, there is no comparison to the DTK line. When our customer looks at the performance and then the price, there's little more to decide."

DTK 486 performance halves workload for consulting company

A San Diego company is singing the praises of its new DTK 486 computer because it has helped to cut the firm's workload by half.

Ericksen-Rattan Associates helps businesses evaluate various hazardous materials. The company needed power and dependability in a computer to keep ahead of an ever increasing amount of work.

"I'm thrilled with the performance," says Mary Rattan. "Our DTK 486 is impressively reliable and extremely fast. It's paid for itself quickly by allowing us to produce more projects and take on new business."

DTK's ten years' experience in the manufacture of motherboards, add-on cards, and systems makes the company a pioneer in a field where a generation is measured in months rather than years. This experience is reflected in the dependability and performance of DTK products.

Information intensive companies like Ericksen-Rattan Associates are finding DTK's performance and dependability are contributing to an improved profit picture. "I recommend the DTK 486 to any business looking to improve their market position," Rattan concluded.

DTK Computer Inc.

DTK 486 drives high-performance software in PC Week Labs test.

When *PC Week's* editors asked PC Week Labs to test Autodesk's® Renderman™ software, a DTK i486™ computer was chosen to run the sophisticated, high-level shading software program. (The drawing shown above is representative of the high quality of Renderman™ output.)

It takes a lot of muscle to get the full benefits of Renderman's™ power; we build that muscle into every DTK i486™ system™.

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Add to these your choice of hard drives and controllers, a fast graphics card and a post-VGA high definition monitor, and you have a PC screamer that can handle even the toughest of jobs … while still affordably-priced.

When power and dependability are important, DTK is the computer of choice of people who know. Perhaps it's time you considered a DTK i486™ for your next computer. Call one of the DTK branch offices below for the name of a reseller near you.

intel inside

The DTK 486 Family ▪ 486-33 ISA ▪ 486-33 EISA ▪ 486-25 ISA ▪ 486SX-20 ISA

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Sources 1991 *Continued from page 102*

high employment levels, and the labor pool has gotten outpriced," says Dr. Po Chi Wu of Advent International, which has founded a VC fund in Taiwan. "Then there is the high savings rate in those economies. Some of the capital has to find outlets."

The venture capital model is uniquely American, and the conditions that made it work here did not exist elsewhere in the Pacific Rim. But, says Dr. Wu, this may be changing: "There is certainly a place for VCs in these Asian countries—which may not mean a lot of capital, reflecting the fact that even in the US, VCs contribute to the capital pool in a very small way, in the overall scheme of things."

Another local factor at work is the large Asian immigrant population in Silicon Valley and the presence of several entrepreneurs in that population. Over the last few years, traditional VCs have become increasingly reluctant to fund startups, so many of those entrepreneurs have tapped into their vast informal network of friends and relatives, both here and offshore. "It has become a Silicon Valley subculture," says Norman Dong, SOURCES conference vice-chairman. "AAMA is attempting to make this process more organized and systematic through programs like SOURCES. This year's conference has been broadened to include strategic alliances. This enables all of us to think about not just capital, but also access to markets. In a way, this global trend is a sign of business maturity."

The US is still perceived as a wellspring of innovation and new technologies by Asian investors. But ultimately, the conclusion is inescapable that no one country's base (be it Japan, Germany, or the US) is large enough, in terms of capital, technology, markets, or labor, to enable a venture to succeed in a global economy. (For information on SOURCES 1991, call the AAMA at 415/325-5499.) ■

Alliance '91 *Continued from page 102*

Once the management in Ashton-Tate are convinced, I think they're going to use their customer base and contacts and accumulated experience in the database industry in Japan, merged with the new philosophy. That really works well.

"Philippe's concern about quality really fits with the Japanese way of thinking, and he requires his people to respond very quickly to problems and questions raised by users. That kind of attitude works very well in Japan."

Kahn himself will be a keynote speaker at this year's Alliance conference in Tokyo, speaking on "The Entrepreneur Spirit." He'll be joined by other luminaries, including Jim Clark of Silicon Graphics, presenting case histories from their own companies' experiences doing business in Japan, from the formation of strategic alliances to the avoidance of cultural pitfalls. This year's three-day conference will include panels on such issues as "US-Japan High Technology Alliances: Partnerships or Piracy?" and "Venture Investing: An Analysis of the US vs. Japanese Perspective."

According to Hara, Alliance '91 will be attended by over one hundred CEOs from Japanese Fortune 1000 manufacturing firms, as well as many CEOs of US firms currently doing business in Japan—some of whom will present open-ended roundtables answering questions about their experiences and offering advice. The conference is of interest not only to established companies seeking to expand their operations, but also to entrepreneurs whose innovations could benefit from strategic alliances with Japanese manufacturers. An entire morning of the conference is set aside for individual meetings to discuss prospective alliances. (For more information on Alliance '91, contact Mark Francis at Alliance Forum, 415/742-0757.) ■

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A Little Fervor And Zeal From Guy Kawasaki

BY MARY EISENHART

The company's vision of its future is the most important part of the business plan. Without a dream, the firm is unlikely to excite either itself or potential investors.

—C. Gordon Bell, *High-Tech Ventures: The Guide for Entrepreneurial Success*

The purpose of this book is to make you into a raging, inexorable thunder lizard of an evangelist. My message is that to make products, companies, and ideas successful, you must sell the whole hog—not just the sizzle—by getting people to *believe* in your product, company, or idea and to share your dream.

—Guy Kawasaki, *Selling the Dream*

Regardless of whether you regard Macintosh enthusiasts as a major force for good or an unfortunate aberration in an otherwise orderly industry, there's little doubt that what many consider their fanatical behavior is responsible for the Mac's becoming a commercial success instead of just another great idea from Xerox PARC that never went anywhere. To this day, the most significant force behind somebody's purchase of a Mac is likely to be some Mac-using zealot who refuses to take any other option very seriously.

Guy Kawasaki was the most visible and relentless of Apple's software evangelists (also the first president of ACIUS, creators of 4th Dimension). Their mission, as described in his first book *The Macintosh Way*: "Using fervor and zeal (but never money) to convince software developers to create products for a computer with no installed base, 128K of RAM, no hard disk, no documentation, and no technical support, made by a flaky company that IBM was about to snuff out." They were so successful at this task that aside from the survival and prosperity of Apple, they managed to catalyze the formation of entirely new types of work and communication—desktop publishing being a prime example.

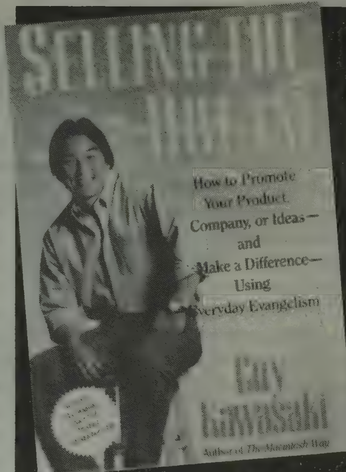
Kawasaki's new book, *Selling the Dream*, is a fervent and zealous handbook based on the principles that catapulted Macintosh to stardom. Using interviews, autobiographical tales, and case histories from Macintosh to MADD, Kawasaki shows the entrepreneur, world-saver, or other person with a bright idea and not much else how to turn it into a veritable movement while avoiding the pitfalls that await the unwary.

Having read the book and seen its relevance to the generally entrepreneurial theme of this issue, I sent Kawasaki email on America Online (where he holds forth as Mac Way) proposing a little interview. Sure, but let's do it in email, says he.

The result owes considerably more to Kawasaki's guerrilla orientation than to the moribund brain cells of the interviewer—he made up much better questions than I did. Which, of course, is only good evangelism. Check out *Selling the Dream* (Harper Collins 1991, ISBN 0-06-016623-0) for more.

What is evangelism? How is it different from sales or marketing that is done well?

Evangelism is the process of getting people to believe in a product, company, or idea as much as you do. Sales and marketing are transaction based: I give you something, you give me money. Evangelism is different: I believe in something, you believe in something, let's go off together and change the world. Sales and marketing are "me" based. Evangelism is "we" based.


SELLING THE DREAM
How to Promote Your Product, Company, or Ideas—and Make a Difference—Using Everyday Evangelism
Guy Kawasaki
Author of The Macintosh Way

"Not even evangelism can work on most venture capitalists. Venture capitalists want to change their wallets. Evangelists want to change the world. The two are difficult to reconcile."

Who needs evangelism? Why?

You do realize that you're talking to an evangelist for evangelism?

The world can be roughly divided into two kinds of companies: those trying to make it and those that already have. Both can use evangelism, although for very different reasons.

Those trying to make it usually don't have enough time, resources, and capital. They need to sell their dream so that others will help them. For example, Apple needed software developers to create Macintosh software. It couldn't do everything in the struggle against IBM, so it needed evangelism. Eventually, IBM even succumbed to Apple's evangelism.

Those who have made it need evangelism to maintain their edge. If they become fat, dumb, and happy, they start to be transaction based: money for product, more money for more product. If a company keeps selling its dream, it means two things: that it is still dreaming (which is good) and that it realizes it needs its customers and supporters (which is even better).

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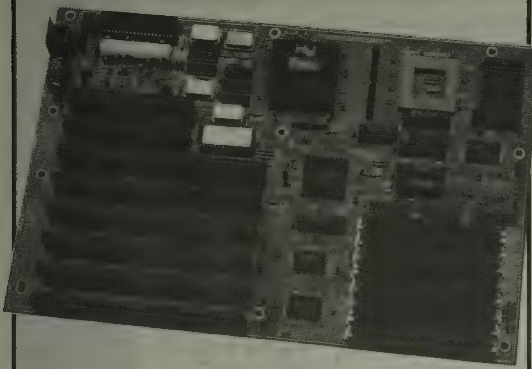

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- TEXAS INSTRUMENT TIGER CHIPSET
- SHADOW RAM
- BABY AT FORM FACTOR
- ON BOARD SIMM MEMORY UP TO 32MB
- MEMORY TYPE 256Kx9, 1Mx9, 4Mx9 SIMM
- MEMORY SPEED: 60ns, 70ns, 80ns, 100ns
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- SUPPORTS MR BIOS
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COMPATIBILITY: DOS, OS/2, Windows 3.0, UNIX, Xenix, OrCad III, PCAD, Novell 2.15, etc. . . .

PERFORMANCE TABLE:

	PAN 486-25	PAN 486-33
LANDMARK v.1.14	114.1 MHz	151.9 MHz
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NORTON SI v.5.0	54.1	72.1
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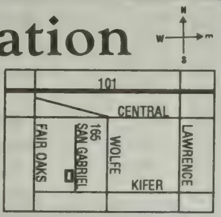

Speaking of Apple evangelizing IBM, what do you think of the hoopla about the Apple/IBM alliance?

Premature articulation. Have you seen the Spike Lee movie called *Jungle Fever*? This movie explains the alliance: Apple and IBM have jungle fever. It has little to do with love, common goals, or common enemies. It's about getting in the sack with someone new.

There are, however, two good things about the alliance. First, it pumps up the Apple engineers who are working on Pink because the probability that Pink will change the world is dramatically increased with IBM's imprimatur. Even if the alliance fails, this shot of adrenalin is great for the Pink project.

Second, Apple sales reps don't have to go into the long Macintosh-is-a-legitimate-computer spiel anymore; all they have to say is, "If it's GUI enough for IBM, it's GUI enough for you." One more thing that the alliance does...it settles, once and for all, that IBM stands for Intimidated By Microsoft.

> **"Those trying to make it usually don't have enough time, resources, and capital. They need to sell their dream so that others will help them. For example, Apple needed software developers to create Macintosh software. It couldn't do everything in the struggle against IBM, so it needed evangelism."**

Actually, there's a third good thing about the alliance: What could be better proof of the power of evangelism than successfully evangelizing your enemy?

Is Microsoft an evangelistic organization?

No, Microsoft is a terminator sent back from the future to kill Apple. It can adopt the form of any innovation it comes in contact with—for example, GUI interfaces, pen-based operating systems, etc.

How do you prevent your fervor and zeal from giving you fatal blind spots?

Usually you don't need to prevent fatal blind spots because the market will hit you on the side of your head with a 2 x 4. With Macintosh, the biggest blind spot was a lack of slots—my head is still ringing.

Fervor and zeal won't last long unless you hear and obey the market once you've shipped. Truly, the only way to sustain fervor and zeal is to provide a product that is good and gets better. Then you can change the world.

Who has the best evangelism in computers today?

In personal computers, Apple. In workstations, NeXT. I also hear that the OS/2 people at IBM are very good.

I hear complaints about Apple's evangelism these days. How can you say they are the best?

"Best" is a relative term [*laughs*]. At least Apple has institutionalized evangelism. Most companies deny its importance. Some bozo companies deny the importance of evangelism and third-party developers completely.

If you were in charge of evangelism at Apple today, what would you do differently?

The bean-counting *meshugas* at Apple have screwed up everyone's minds. Management said, "Cut costs." The evangelists heard, "Focus on big developers." If I were at Apple, I would refute the philosophy and dismantle the infrastructure that says "We have limited resources therefore we must focus on the big developers."

Only two things should matter to an evangelist: how much a developer believes in Macintosh and the developer's product. Whether some yoyo analyst or Apple executive thinks a developer is important should be irrelevant.

How can you tell if a business is a cause?

A business is a cause when it can incite fervor and zeal in people who do not materially profit from its success. The people who evangelized Macintoshes in their companies, for example, didn't do it to make themselves rich. (They didn't do it to make John Sculley rich either, I might add.) They did it with the users' best interests in mind.

Can anything be a cause?

Just about anything. A cause is in the eye of the beholder; Ralph Hodgson said, "Some things have to be believed to be seen." A cause has to embody a vision, make people better, generate big effects, catalyze selfless actions, or polarize people. You come up with an example. I'll show you how it can be a cause.

How about bran muffins?

As a product, bran muffins represent the exchange of sugar, eggs, bran, and flour for money. As a cause, bran muffins embody the vision of using natural ingredients to increase the healthiness of people by lowering their cholesterol. From this perspective, people may evangelize your bran muffins for you.

What are angels?

Angels are people or organizations that help you fly. They share your vision and want to help you succeed. They provide wings such as emotional support, expertise, connections, and sometimes money.

Are venture capitalists angels?

In theory, venture capitalists should be angels. In practice, they almost never are. Angels provide wings; most venture capitalists provide weights.

Frankly, there are only three kinds of venture capitalists: the first worked at Intel or National Semiconductor and believes that the world has never changed (and never will); the second tries to apply the Harvard Business School cases he or she studied last year; the third follows Kleiner-Perkins around like a dog picking up the scraps that fall off the table.

Isn't this a little harsh?

If I didn't give you good sound bytes, you wouldn't be interviewing me, would you? You can quote me: A venture capitalist with balls, brains, and bucks is rarer than a profitable Businessland store.

How does one evangelize a venture capitalist?

I'd find out if he or she read this interview. If he or she has, then I'd say, "That Kawasaki really doesn't know what he's talking about, does he?" and move toward closure from there.

Seriously.

Seriously, not even evangelism can work on most venture capital-

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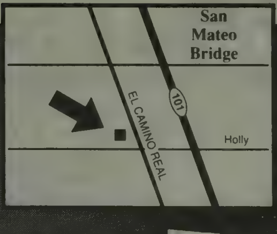

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ists. Venture capitalists want to change their wallets. Evangelists want to change the world. The two are difficult to reconcile.

If I had an idea that could change the world, I would tap private individuals who might buy into the dream and then provide smart, kind, and patient money. I'd approach venture capitalists, if at all, only near the end of product development when most risks have been removed, and the dream is almost a reality.

Are you saying that venture capital money isn't smart, kind, and patient?

Yes. I've watched a lot of venture capitalists make a lot of investments. It seems to me that the common factor in most successful investments is being in the right place at the right time and not much more.

For those people who are too lazy or too cheap to read your book, what are the best ways to evangelize a cause?

What? And jeopardize my royalty? Only for you, Mary.

Let people touch your dream. Let people experience and play with your product. Don't *tell* them why they should buy your dream. Let them *discover* for themselves.

Provide a safe first step. Dreams usually contradict the status quo and involve risk taking, so provide a simple, inexpensive, and risk-free first step. You can't push people into buying a dream.

Let a thousand flowers bloom. Let people contribute to your dream in any way they can—no matter how small or unexpected. You aren't omniscient or omnipotent, and you'll be delighted by what blooms.

Localize your efforts. Help people see how your dream affects their everyday lives. Make your dream grand, but make its impact local. Feet on the ground, head in the clouds.

Inspire, don't compete. Don't ask your followers to do something and then do it yourself. For example, don't do applications if you want developers to support your operating system.

Do the right thing, the right way. Don't worry about what the press, pundits, and experts say. If you're successful, they'll come around and praise will become a chorus.

Remember your friends. Remember that you are standing on someone's shoulders. No matter how great things are going, never forget the people who got you where you are.

Speaking of inspiring and not competing, you must disagree with Apple bringing Claris back.

No, actually I agree with Apple's move. Apple is very strategic. It realized that by bringing back Claris and vesting all its employees, key people like Bill Campbell would leave, and Claris would go down the tubes.

Not one executive has stayed at Claris since the acquisition. This was a very cerebral way for Apple to stop competing with its developers. I would have never thought of this.

One last question. Can all the fervor and zeal in the world compensate for a bad or mediocre product?

This question is oxymoronic. Companies with fervor and zeal don't make bad or mediocre products. ■

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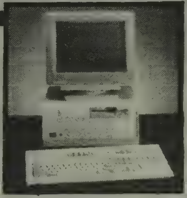

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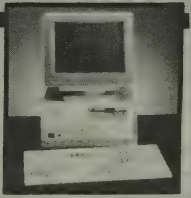

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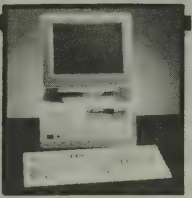

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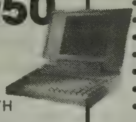

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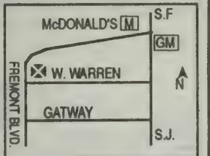

Computer Books

Or, What To Do When The Manuals Let You Down

BY PAUL HOFFMAN

You've probably been there before: you're working with some new software, you're pretty sure that it's supposed to do a particular task, but you can't figure it out and you can't find it in the manual. It's not in the very abbreviated table of contents; it's not in the index, and none of the command names sound right. After a bit of cursing and self-doubt, you decide that maybe the software doesn't really do that, or that the company that makes the software doesn't care enough about its manuals to make them useful.

Next time you're at the bookstore, you discover a book about the software and decide to peruse it. Voila! There is an entire chapter on what you wanted to do. You buy the book just for that one chapter but, on reading the whole thing, discover that the book has dozens of things that you never came across in the manual. Now you're really angry at the software company and glad that you found the book. However, you also resent having had to pay $20 or $30 for the book, since that information should have been in the manual.

Or—perhaps you are the kind of person who always buys a book about the software you buy, "just for insurance." However, it's almost impossible to tell which book to buy. Computer book titles seem to indicate the level of the book's contents (such as "Made Easy," "Complete Guide," or "Advanced"), but when you get the book home you discover that the title was misleading. Worse yet, you may discover that the supposedly "Complete Book of" is missing features that you know about. Choosing the right book to go with your software and speak to you at the right level can be as difficult as choosing the correct software.

(Personal note: I am very familiar with both sides of the computer documentation field. I've written over a dozen computer books with many publishers and have also written many manuals for software and hardware companies. Don't worry, I won't plug any of them in this article.)

WHAT'S WRONG WITH DOCUMENTATION

If manuals were perfect, or even very good, there would be almost no market for computer books. However, manuals usually range from acceptable to horrible, so there's plenty of room for computer book publishers. Even "good" manuals have major faults, and it is impossible to write a single manual that will be of value to a first-time computer user and an advanced user at the same time. Some software and hardware companies do a good job of describing their products to the majority, the mid-level users, but most do not even do that.

If manuals were perfect, or even very good, there would be almost no market for computer books. However, manuals usually range from acceptable to horrible, so there's plenty of room for computer book publishers. Even "good" manuals have major faults, and it is impossible to write a single manual that will be of value to a first-time computer user and an advanced user at the same time.

The biggest problem with computer documentation is audience focus. The better manuals are split into step-by-step introductions with lots of examples, a general-level reference section (usually arranged by topic), and some quick-reference appendices. However, most of these do not have enough hands-on examples or explanations of why you are doing something. The worst manuals are pure description with no explanation or order.

Manuals suffer from other debilitating problems, usually caused by the companies themselves. It takes a long time to print and collate manuals, and software companies always release their software late. This means that the software is still being worked on as the manual is being sent to the printer. No wonder features don't get into the manuals: they didn't exist when the manual was finished! Worse yet, most companies change the style and audience of software as it is developed, and the manual is often aimed at an audience that is not being targeted by the company when the product is released.

OVERVIEW OF COMPUTER BOOK PUBLISHING

The best way to get a good computer book is to know what's available and what's in the books. There are thousands of computer books; hundreds more are introduced or updated every year. Of the many publishers that publish computer books, about a dozen large ones specialize in microcomputer books exclusively, and make up the vast majority of the sales.

First, it is important to shatter a few myths about computer books.

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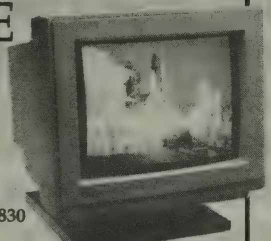
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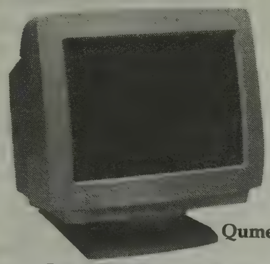
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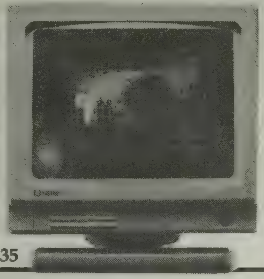
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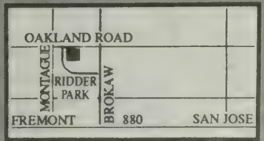

The authors are not always experts at the subjects they write about. If you've ever bought a computer book with errors or bad suggestions, you already know this. Mind you, many authors are absolute experts on the subjects and the publishers find them by looking for advanced users who have published before, either other books or magazine articles. But in many cases, the authors are simply good at using the program and can write well. One reason publishers don't use experts exclusively is that most experts on a particular piece of software couldn't write their way out of a paper bag. So the publisher compromises and gets someone who seems competent and can communicate well.

Publishers are as bad at figuring out what type of presentation is best for a particular type of software as manual writers are. Some programs lend themselves much more towards a step-by-step approach than others; some are best described just in terms of their parts. Beginners don't always want pedantic, slow-and-steady books, and advanced users often want to see simple hints, particularly if they aren't covered in the manual.

> **Once you've found a book you think you like, spend a few minutes reading a chapter in the middle of the book to make sure you like the author's tone. Your best bet is to find a chapter on a subject you don't know about, so you can tell whether the author describes new ideas well.**

Many books don't tell you anything that isn't in the manual—they only present it better (if you're lucky). A good way to judge how much an author knows is to look for things that were clearly never covered in the manual, such as advanced techniques. Even more important are warnings about pitfalls in the program. Amazingly enough, even though most readers desperately want to read about problems with the program, few authors discuss them, putting on the same happy face that the software's manufacturer did.

You can't judge a book by its cover or by its publisher. Some publishers have a few excellent books but the rest of their selections are mediocre to lousy. If you bought a good book from Publisher X before, don't assume that another book, even about the same subject, will be very good. Editors move around from publisher to publisher, and authors often go to the highest bidder or the publisher with the least repulsive production staff. There is incredibly little consistency between books even during a single year from a particular publisher. Also, do not assume that just because a book is the "official" book on a subject that it is any better than others.

Perhaps the least excusable defect in many computer books is errors. It is not uncommon to find at least three or four errors in any given book. But, you ask, don't the publishers have the facts in the books checked before publishing them? In many cases, no. Five years ago, most major publishers had full technical reviews performed on each manuscript; now, many get a cursory glance from someone who is only paying partial attention to technical detail. Many publishers assume that if a reader finds a "bug" in a book, that reader will inform the publisher and it will be taken out of the next edition.

FINDING THE RIGHT BOOK

If you're sure the manual isn't doing it for you and feel like spending $20 to $30 for a book, you want to be sure that the book you buy is the right one. Computers are not cheap, and computer book prices are going up, not down. Publishers brag how the computer book market is insensitive to price and that the only thing that prevents them from raising their prices more is that the competition hasn't. Not a healthy situation for the buyers, to say the least.

Given that there are often dozens of books on the most popular software, you want to go to a bookstore that has the most variety of titles. College bookstores are usually pretty good, and there's usually at least one large bookstore near every major college that has an excellent collection of books. Some chain bookstores carry a selection with a great deal of depth, but not often. If the bookstore you frequent has fewer than twenty titles on 1-2-3 or WordPerfect, you should probably find a bookstore with a larger collection of computer books.

Be sure that you know what you want from the book before you start looking. If you are a beginner, you may want a "complete reference," but only if you feel that the manual gave you a good start; otherwise, you probably want a good overview aimed at novices. If you are an intermediate user who understands a fair amount about what's going on in the program, you have many more choices. You may want a reference, a tips-and-tricks book, a book full of examples, and so on. Advanced users probably are only interested in references and are the most likely to be disappointed by what they buy, since reference books are usually no better than the manuals.

Depending how important the program is to you, you may want to buy two books instead of one. Of course, this means spending $40 to $60, which can add up to a hefty percentage of the price you paid for the software. (A side note: you *did* pay for the software, didn't you? If you're buying a book because you're using pirated software and don't have a manual, you deserve to buy the worst books, over and over. Particularly books with lots of frustrating mistakes in them.) If the manual is not helping you at all, you may need one book with lots of examples and another that is a reference guide. You should also consider writing a nasty letter to the manufacturer telling them what you think of their manuals.

Most books are at least acceptably good, but you're paying good money, so you should aim for the best. The most common place where a book fails a frustrated reader is in the index. Look through the index for phrases that you know should be there. Also check the table of contents to be sure you can use it to find the right section quickly. Look at a few of the illustrations: do they look like what you have seen on your screen?

Finally, once you've found a book you think you like, spend a few minutes reading a chapter in the middle of the book to make sure you like the author's tone. Your best bet is to find a chapter on a subject you don't know about so you can tell whether the author describes new ideas well. Some authors can get all of the facts right and have good examples, but just have the wrong writing style for some readers. Even if this makes choosing the right book take an extra fifteen minutes, it'll be worth it, since you'll be spending hours with the book.

LOOK FOR QUALITY, NOT QUANTITY

Like all consumer products, computer books are designed for different types of people. Many publishers think that the best way to get someone to buy a book is to make it as long as possible, regardless of the needs of the readers. Others will spend much more on the design of the book than on checking whether or not it is accurate or complete. With a bit of shopping, you can avoid both of these and get a book that takes you much further than the manual does. Spend time looking for the right book, just like you spent time looking for the right software. ■

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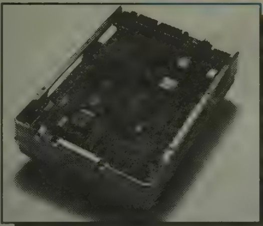

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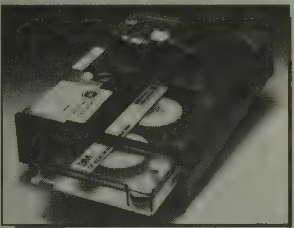

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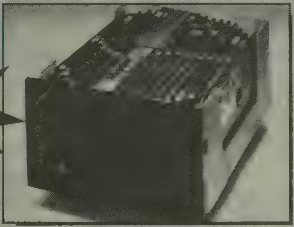

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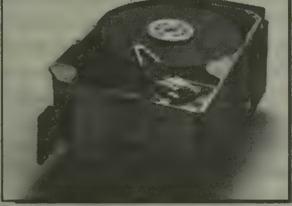

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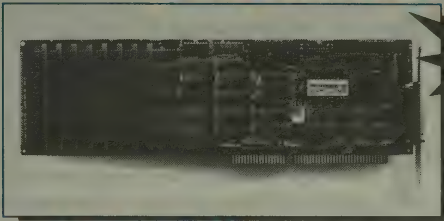

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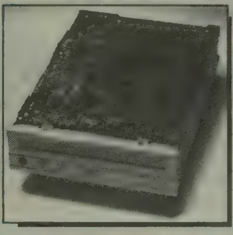

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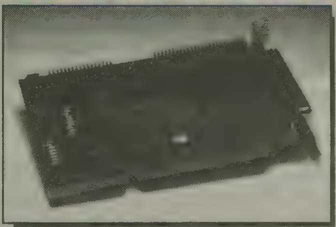

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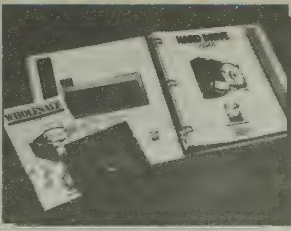

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Adventures With System 7: Separating Truth From Rumor

Part 1: Installation, Compatibility, And System Switching

BY LENNY BAILES

To install System 7 is to embark on a new adventure with the Macintosh. Some users take the upgrade in stride, trusting that the new features and system enhancements will be worth it. More cautious users may ask questions and compare notes: "Will my old software work?" "What about all of my DAs, INITs, and CDEVs?" "I heard that once you install System 7 on the hard disk there's No Going Back..." (This last is actually an untrue rumor, as we'll see later on.)

FIRST ENCOUNTER

When I dutifully ran the "Before You Install System 7" stack, I was somewhat disheartened by the proclamations of Apple's Compatibility Checker: "FreeHand 2.0, Illustrator 1.83, Curator, TOPS, DOS Mounter, DiskTools, Suitcase: must upgrade. PageMaker 3.0: never heard of it!" Oh no, I thought, there's got to be a way you can switch back and forth between System 7 and System 6, or half of my productivity software goes out the window.

Happily, I discovered later, the Compatibility Checker's warnings were overaustere. Nearly all of my old applications and desk accessories run under System 7's default configuration. Everything would work as long as System 7's advanced features (virtual memory and 32-bit addressing) remained disabled. But I didn't know that in advance. I was determined to find a way to switch back to System 6 if worse came to worst.

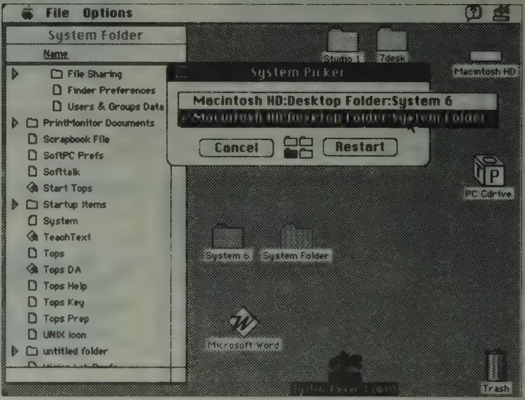
IS SYSTEM 7 WORTH THE TROUBLE?

Well, I found out it's not much trouble if you install it right, and it's really a new adventure. Moving from least to most significant on my subjective scale of benefits:

System 7 is prettier on a color Mac. Icons and menus can be shadowed or greyscaled. File and folder types can easily be classified by color and label. You can now edit file icons and replace them by pasting in from the Clipboard. It's no longer necessary to hack around in ResEdit.

The built-in MultiFinder: This seems to work about as well as the old MultiFinder, but the switching menu is better, and it's nice to be able to hide unwanted windows. Background printing with the Print Monitor is smoother than under System 6. It's still not real multitasking, except for the print spooling. Anytime you save a file, everything else gets suspended.

New file display/file management features: A belated homage to Andy Hertzfeld (whose Servant utility pioneered most of these concepts). I'm conditioned to using the Find File utility to track down elusive folders and documents, but System 7 makes this unnecessary. If you flip the new triangles in the file list display, you can find anything at a glance. The file list triangle expands or collapses the tree to show nested folders and their files. You can make alias icons on the desktop for data files or applications nested several folders deep. Alias icons can also connect across an AppleTalk network, launching programs on a different machine.



System Picker lets you keep two system folders on your hard disk to switch back and forth between System 6.0.5 and System 7. [Notice System 7's new file display feature on the left, and TOPS 2.1 PC connection on the right. Desktop Publishing businesses may be interested in the fact that this version of TOPS appears to be System 7 compatible.]

Balloon Help: "This is Fred the Fish. Use him to open the flounder database." Balloon Help won't do much for an experienced user poking around the Finder—but just wait till you install a new drawing program that has twenty mysterious icons in the tool palette. I'm not likely to use Balloon Help much, but it should be a great icebreaker for newcomers (as well as an encouragement to avoid reading the manuals).

TrueType: This is getting on to something exciting. Effortless device-independent font installation, no more division between bitmapped screen fonts and printer fonts, and high-quality output on both QuickDraw and PostScript printers. The TrueType fonts coexist with the older bitmapped and PostScript fonts, so you don't lose the fonts you already had.

The New System Folder: This reapproaches the sublime spirit of Steve Jobs' original appliance concept. (I'm speaking, here, as a tenth-level adept of Microsoft Windows configuration on the PC.) I had to give a happy, childlike gasp over the new way of handling fonts and DAs—"Gee, you just move the file icons into a folder. Everything shows up on the menus without rebooting, and it actually works." No more Font/DA mover, just double-click a suitcase file and drag out what you want to use.

DAs can be run from the Apple menu or as standalone programs. Applications can also be placed in the startup folder to open auto-

Continued on page 124

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Lenny Bailes is a teacher and consultant in the Bay Area. He has been writing about microcomputers since 1987. Currently he's writing a book on PC memory management and can be reached via the Internet at jroe@well.sf.ca.us, or at (415)285-6232.

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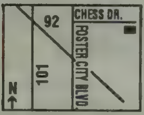

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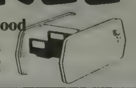

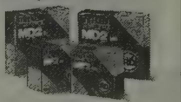

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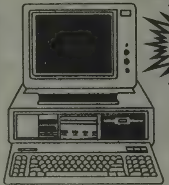

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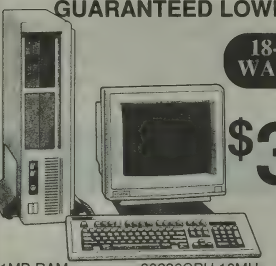

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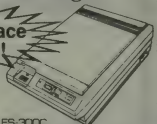
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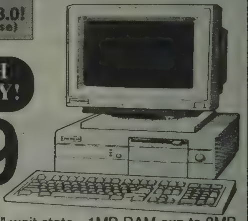

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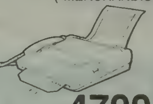


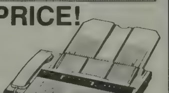
4700

$699

- 10 sheet automatic feeder
- 164' paper capacity
- 256K memory
- 16 grey scale
- Built-in telephone

TOSHIBA TF251	$789
TOSHIBA 4400	$499
TOSHIBA4600	$629
OKIFAX 700	699
SAMSUNG FX1100 GREAT PRICE!	399
SAMSUNG FX 2310	529

SHARP
FO-216



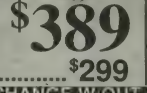
$589

- Auto cutter
- Auto fax/phone switch
- Answering machine hook-up

SHARP FO-120	$418
SHARP F0-240	$699
SHARP F0-334	$748

MURATA
M1100

LOWER PRICE!



$389

- Automatic Paper Cutter
- Advanced calling features
- Automatic multi-page feeder
- Secondary phone connection

MURATA M900	$299

ACCESSORIES

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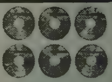
External CD-ROM System



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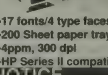
LASER OL400



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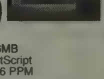
- 17 fonts/4 type faces
- 200 Sheet paper tray
- 4ppm, 300 dpi
- HP Series II compatible

Abaton
LaserScript
PostScript Printer

MAC & PC Compatible!



$1399

- 2.5MB RAM exp to 6MB
- 35 typefaces for PostScript
- 300 dpi resolution • 6 PPM
- One-Year Warranty

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A World Of Printers Awaits You!

Authorized Reseller & Service Center

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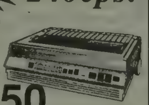
KX-P1191 $149

SAVE $90 OFF ORIGINAL SALE PRICE

240cps!



- 240cps, 48cps NLQ
- 4 built-in NLQ fonts
- 2 year warranty

KX-P2150

Same as KX-P1180

- 192cps, 38cps NLQ
- 4 built-in NLQ fonts
- 2 year warranty

$119

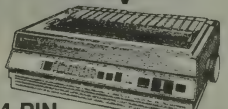
•THIS IS FACTORY RECONDITIONED & FULLY GUARANTEED

Huge Savings On All Printers!

Panasonic Office Automation OA

KX-P1124

SAVE $50 OFF ORIGINAL SALE PRICE



24-PIN

- 192cps, 63cps LQ
- 5 built-in LQ fonts
- 2 year warranty

$199

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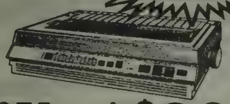
Panasonic Office Automation OA

KX-P1695

High-Speed!

SAVE $70 OFF ORIGINAL SALE PRICE



375cps! $299

- High speed printing
- 375 characters per second
- Super letter quality

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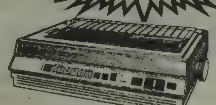
Panasonic Office Automation OA

KX-P1624

24-PIN

SAVE $50 OFF ORIGINAL SALE PRICE



- 192cps, 63cps LQ
- 5 built-in LQ fonts
- 2 year warranty

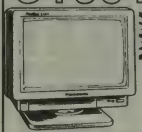
$299

•THIS IS FACTORY RECONDITIONED & FULLY GUARANTEED

Panasonic Office Automation OA

SUPER VGA MONITOR .28 DOT PITCH INTERLACED

C1381



SAVE $50 OFF ORIGINAL SALE PRICE

MAC & IBM COMPATIBLE

- Super VGA Monitor
- .28mm dot pitch
- 1024x768 resolution

$299

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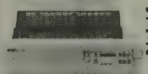

SAVE $300 OFF ORIGINAL SALE PRICE

LQ-2550 *High-Speed Color!*

$599 *400cps!*

- 400 characters per second
- 360x360 dpi resolution • 24-pin printer
- 7 resident fonts • 1 year warranty

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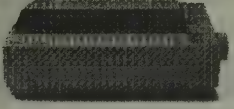
LQ-200 24-PIN



$229

- 192 characters per second
- 360x360 dpi resolution • 24-pin
- 7 resident fonts • 2 year warranty

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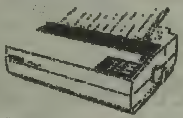
Multi-part & invoice printing!

Color Option $50



300cps!

EX-800 $249

- 300cps • 9-pin printer
- 80 column
- 1 year limited warranty

EPSON®

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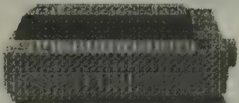
LQ-510 24-PIN



$249

- 190cps, 60cps LQ
- 360x360 dpi resolution • 24-pin
- 11 resident fonts • 2 year warranty

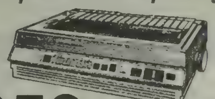
Panasonic Office Automation OA

KX-P1524

24-PIN

Ideal for Business!

Multi-part & invoice printing!



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- 240cps, 80cps LQ
- Memo load for single sheet
- 15" wide carridge
- 2 year warranty

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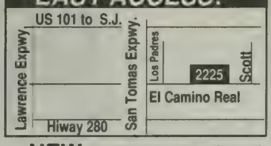

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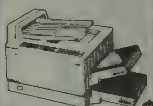
KX-P4455

PostScript Laser



Accessories for 4455/4455i	
Legal Tray	$49
Envelope Tray	.69
Toner	39
Drum Unit	149
Developer	99

$1699

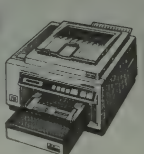
- 2MB RAM exp to 4MB
- 500 sheet paper capacity
- 26 internal fonts • 11PPM

KX-P4450i $1099

KX-P4420

Laser Printer

Accessories for 4420	
Legal Tray	$49
Envelope Tray	.69
Toner	39
Drum Unit	119
Developer	89



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- 512K RAM exp to 4.5MB
- 250 sheet paper capacity
- 300 dpi resolution • 8 PPM

Notebook Size Laptop

CF-370

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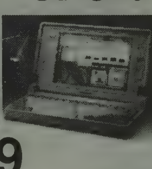
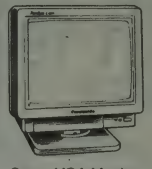
Weights 7LBS



$2999

• 386SX-20MHz • 3.5", 1.44MB FDD • **60MB HDD** • Backlit LCD • 1MB exp to 5

SUPER VGA MONITOR .28 DOT PITCH INTERLACED



C1381

MAC & IBM COMPATIBLE

- Super VGA Monitor
- .28mm dot pitch
- 1024x768 resolution

$348

KX-P2624

Silent Printer

THE QUIETEST PRINTER AVAILABLE!

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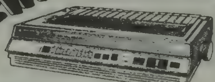
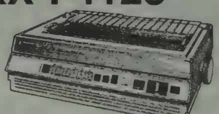


- 300cps,100cps LQ
- 24-pin letter quality
- 11 fonts, 26K buffer
- 1 year limited warranty

$448

KX-P1123



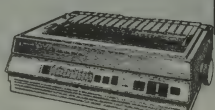
- 192cps, 63cps LQ
- 5 built-in LQ fonts
- 2 year warranty

$229

KX-P1180 .... $144

KX-P1124*i*

PC MAGAZINE EDITORS' CHOICE



- 300cps, 80cpsLQ
- 8 built-in LQ fonts
- 2 year warranty

$282

14" Multi-Frequency Color Monitor

NEW!

C1395

MAC & IBM COMPATIBLE

Non-Interlaced

- .28mm dot pitch
- 1024x768 resolution

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World's Smallest & Lightest!
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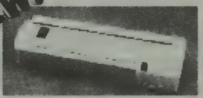

Printer Only	$349
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- 360x360dpi laser quality
- Weights only 2.5 lbs w/ battery
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286-10MHz
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386SX-16MHZ w/40MB HDD

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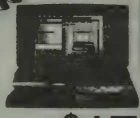

• Windows 3.0
• carrying case
$100
w/Purchase of ARC 3000

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• 1MB RAM expandable to 5MB • 40MB IDE HDD • 3.5", 1.44MB FDD • VGA LCD display • 80 key keyboard w/ 12 F keys • Parallel & serial, VGA monitor & keyboard ports • 6.8lbs

TEMPO LX

EVEREX

NoteBook Size Laptops

386SX-20MHz w/60MB HDD

EVEREX
Pocket Fax/ Modem
$299

New Lower Price!

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• Backlit VGA display • 1MB exp to 5MB • 3.5" FDD • MS-DOS 4.01 • intel 80387SX coprocessor support • Weights 7lbs w/battery

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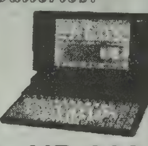

$2255 **NP-903**

• 80386SX, 16 MHz • 2MB RAM exp. to 8MB •3.5",1.44 MB FDD/40MB HDD •VGA resolution • MS-DOS 4.01w/ Windows 3.0 included

Full Line Of Accessories Available!

Car Adapter Cable	$29
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External FDD Module/Serial Port	299

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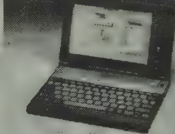
TRAVELMATE 3000 NOTEBOOK COMPUTER



386SX 20MHz
40MB HDD
2MB RAM

WEIGHTS ONLY 4.4lbs.

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- VGA resolution 640x480
- MS-DOS 4.01 & Laplink included

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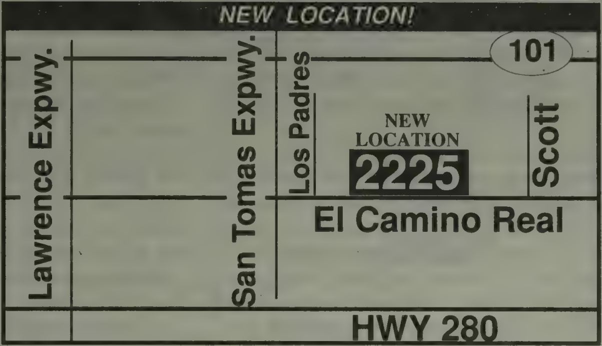

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- 14" Trinitron tube • Built-in tilt/swivel base

GDM1936 ......20" NEW.... $2499

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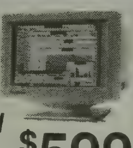

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Multi-Sync
NON-Interlaced

- 1024x768 resolution
- .25 dot pitch • Trinitron Tube
- VGA, Super VGA, & 8514/A compatibility

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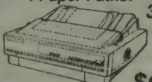
LQ-570

NEW!

•Scalable Fonts!
•4 Paper Paths!

FAST 315cps!



- 24-Pin, 315cps
- 12 Built-in font
- 4 Paper Paths
- Two Scalable fonts, 8 to32 pts
- Two-Year Limited Warranty

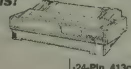
$289

ESC/P2™ EPSON

LQ-870
Narrow-Carriage!
•Scalable Fonts!
•4 Paper Paths!

$469

- 24-Pin, 413cps
- 12 Built-in fonts
- 4 Paper Paths
- Two Scalable fonts, 8 to32 pts
- Two-Year Limited Warranty



LQ-1170
Wide-Carriage!
FAST 413cps!

$629

- 24-Pin, 413cps
- 12 Built-in fonts
- 4 Paper Paths
- Two Scalable fonts, 8 to32 pts
- Two-Year Limited Warranty

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at 1024x768 res

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- 1000 Items to choose from!

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Continued from page 118

matically when you start the machine. (Windows can do this, too, but you wouldn't want to know what you have to go through to make it work.)

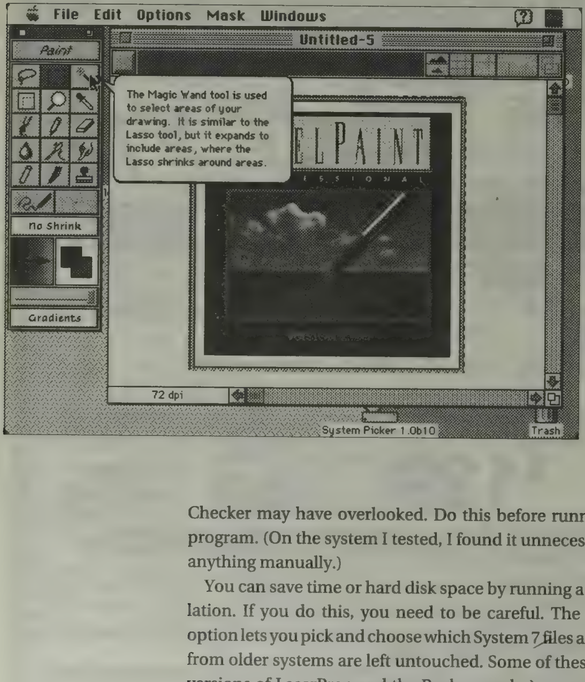
32-bit operating system/virtual memory: Eventually, these will be very useful features of System 7—run applications faster and never run out of memory to edit those huge graphics files. Right now there are still a lot of programs that can't use these features, but updates are on the way.

New network features: You can turn any Mac into a file server without having to spend $800 for AppleShare. There are a few bugs that need to be worked out, but System 7 now supplies full client/server support for group networking (including several security levels).

Publish and Subscribe: Apple and Microsoft are in a race to see who can provide better interapplication connectivity. Apple's version is here now, while Microsoft's is still in beta testing. "Editions" are specially designated text chunks, tables, or drawings "published" from one application to a "subscribing" application. You can generate a series of different subscribing documents. When you change the data in the publishing application, the subscriber documents update themselves automatically. Right now, only a few applications support Publish and Subscribe, but they all will, eventually.

THE MANY ROADS TO INSTALLATION

There are several different ways to run the System 7 installation program. The Compatibility Checker gives you the option of removing doubtful startup devices before you begin the installation. If you choose Easy Install, System 7 simply overwrites all printer drivers and other system files on the disk. If you use lots of INITs and CDEVs, you can play it safe by manually removing anything the Compatibility Checker may have overlooked. Do this before running the Install program. (On the system I tested, I found it unnecessary to remove anything manually.)



The Magic Wand tool is used to select areas of your drawing. It is similar to the Lasso tool, but it expands to include areas, where the Lasso shrinks around areas.

Balloon Help may be really useful with that high-powered paint program you just installed.

You can save time or hard disk space by running a custom installation. If you do this, you need to be careful. The custom install option lets you pick and choose which System 7 files are copied. Files from older systems are left untouched. Some of these files (like old versions of LaserPrep and the Backgrounder) may cause conflicts. You'll have to read the System 7 manual carefully, go through the System Folder, and purge leftover files manually. You should know exactly which files are needed for your custom installation. If you forget to install something critical, you'll notice it later.

Once System 7 is installed, you can experiment with the INITs, DAs and CDEVs you removed, replacing them in the system folder one by one to see what works.

RUNNING DUAL SYSTEMS

If you think you might want to go back to System 6 once in a while, you have several options. Before running the Compatibility Checker, duplicate your System folder. (According to BMUG guru, Steve Costa, you can do this safely with System 6.0.5 and above.) Rename the extra folder to something other than "System Folder." Next create an extra "holding folder." You will remove the Finder and MultiFinder from the duplicate system folder and place them in the holding folder. This will keep the System 7 installation program from searching the duplicate system folder.

Now run the Compatibility Checker. Let it remove all of the doubtful files in your original system folder. Then choose the Easy Install option.

When you reboot the machine, it comes up in System 7, rebuilding your previous desktop. By default, the advanced System 7 features (file sharing, 32-bit processing, and virtual memory) are turned off. Most of your applications will probably run under this configuration. DAs and INITs may be less reliable.

Apple recommends the following procedure for restarting the machine under Systems 6.0.5 to 6.0.7:

1. Create a holding folder next to the folder containing System 7. Remove the Finder from the System 7 folder and place it in the holding folder.

2. Return the System 6 Finder or MultiFinder from the other holding folder you made to the "Copy of System 6" folder. Click twice on the "Copy of System 6" folder and then close it. You'll notice that the folder now bears the active system icon.

3. Restart the machine. It will come up in System 6. Any files left on the desktop while you were working in System 7 are placed in a new folder (called Desktop Folder) under System 6.

4. To switch back to System 7, remove the Finder or MultiFinder from the System 6 folder. Then transfer the System 7 Finder back into the System 7 folder. Click twice on the System 7 folder, then restart the machine.

The above procedure is tedious, but officially sanctioned. There are several less cumbersome ways to switch back and forth between two systems. (According to Steve Costa, you should never have two system folders on your hard disk if one of them is below 6.0.5. If one of your Systems is below 6.0.5, the only way to switch is to use two physically separate startup devices, each containing only one system folder.)

SYSTEMSWITCHER/SYSTEM PICKER

In Japan, Mac users have had utilities for several years that can "bless" one system folder on a hard disk and ignore others. This was developed as a necessity for people who need to switch back and forth between KanjiTalk and English. (Note—Blesser, written for this purpose, *does not* work with System 7.) SystemSwitcher and System Picker are two free utilities that do work.

SystemSwitcher started as an in-house utility distributed by Canon Corporation in Japan. If launched with the Option key held down, it gives you the options of switching to System 7 or KanjiTalk, and rebuilding the boot blocks on the hard disk. Updating the boot blocks is mandatory. System 6 and System 7 have different ways of writing to the hard disk. If the boot blocks aren't rebuilt when you switch, you may lose data.

System Picker, the second utility, searches every folder on your disk for copies of the System and Finder. It lists all the system folders in a menu, permitting you to select the one you want to "bless." When the machine restarts, the boot blocks are updated automatically.

When you use either of these utilities, there's no need to create separate holding folders and juggle the Finders around. It should be emphasized that Apple's technical staff takes no responsibility for supporting system switching utilities. BMUG has tested and approved of SystemSwitcher, and I've been using System Picker for several months now without mishap.

Continued on page 230

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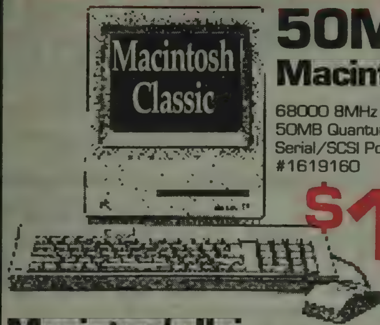

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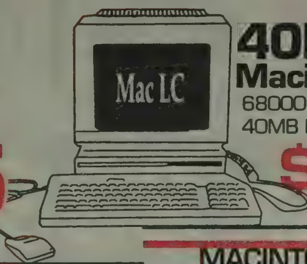

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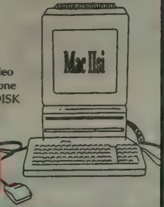

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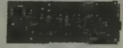

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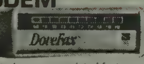

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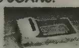

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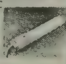

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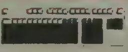

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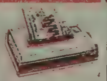

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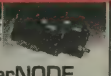

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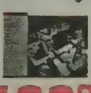

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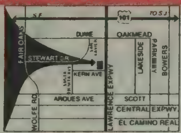

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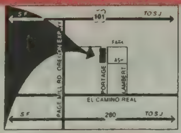

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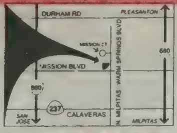

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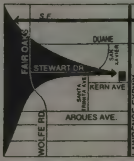
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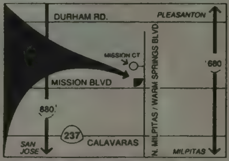
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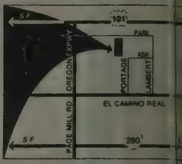
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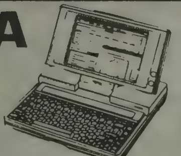

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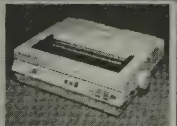

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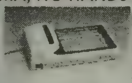

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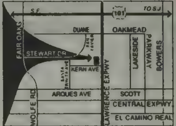
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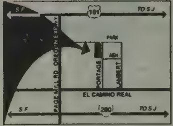
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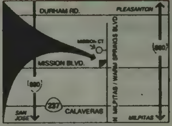
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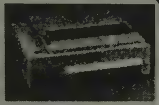

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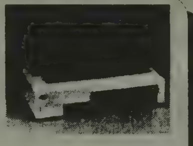

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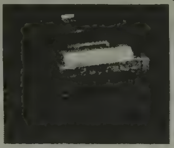

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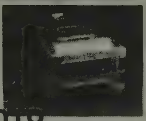

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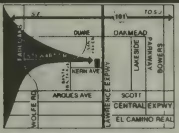
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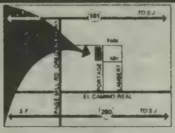
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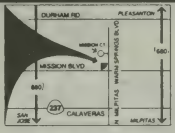
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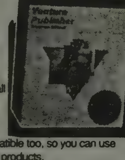

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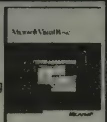

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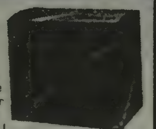

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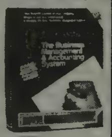

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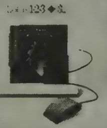

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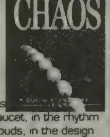

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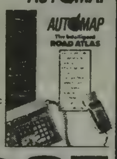

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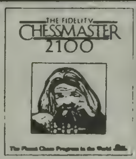

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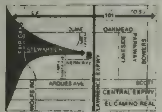

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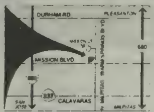

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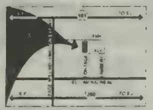

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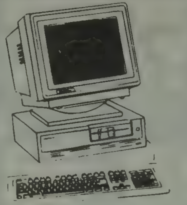

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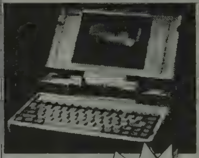

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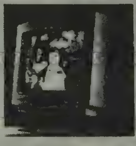

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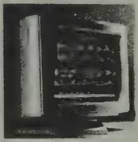

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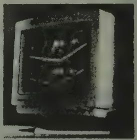

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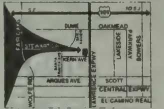
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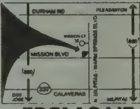
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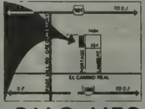
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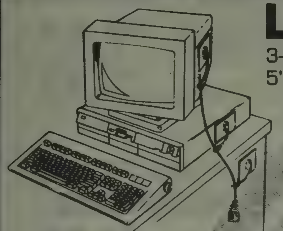

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3-3.5" X 4" Metal Mounting Plates
5' Vinal Covered Cable and Padlock

$26⁹⁵

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Security Kit for valuable Equipment
2 housings • 5' cable • Padlock

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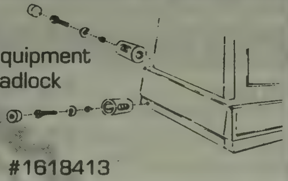

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LOCK-KIT 6B

Security Kit for Laptops & Portables

1 Hinged Security Plate
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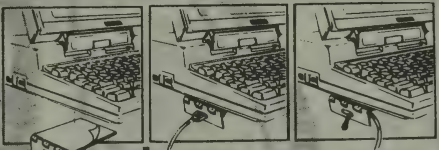

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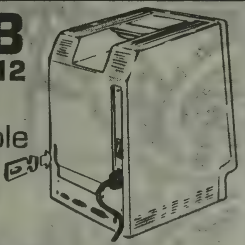
For Laptops #1618424 For MAC Portable #1618402

MAC-KIT 1B

For Mac Plus & Mac 512

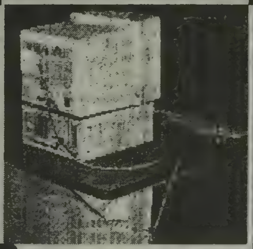
2 Security Clips
7' Vinyl Covered Cable
1 Padlock
#1618365



MAC-KIT 3B

For All Mac II & Apple IIGS & C

2 Security Clips
7' & 3' Vinyl
Covered Cables
1 Padlock #1618387



MAC-KIT 2B

For Mac SE & Classics

1 Security Clip • 7' Vinyl Covered Cable
Hinged Adhesive Plate • Keyboard Loop
1 Padlock #1618376

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Security For Mac LC

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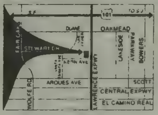

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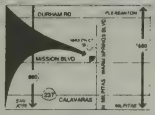

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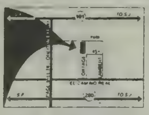

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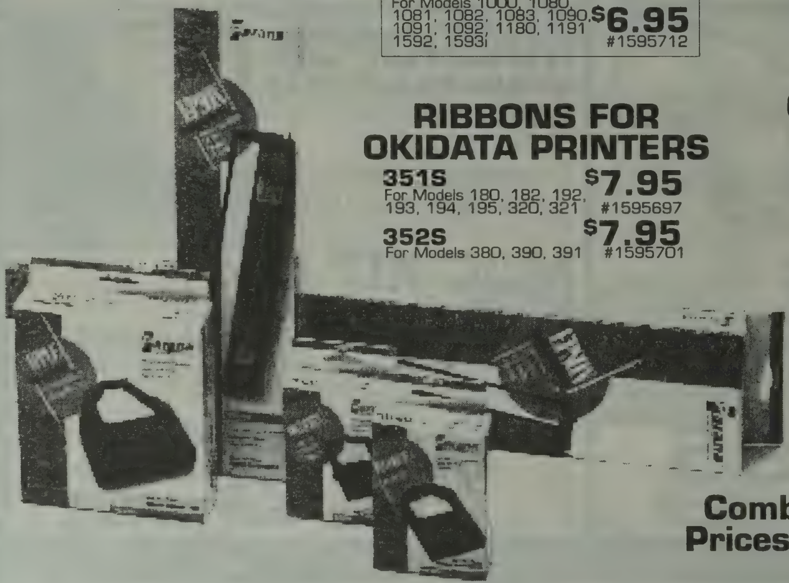

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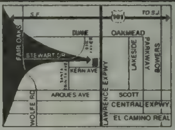
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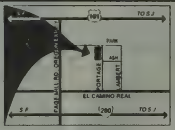
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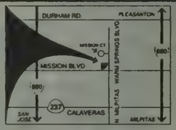
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80 Column
210 CPS Draft Mode
70 CPS Letter Quality Mode

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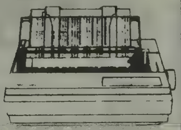

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275 CPS Draft Mode
92 Letter Quality Mode

$469

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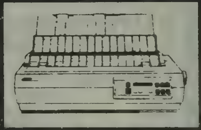
LQ-1170 24 PIN PRINTER



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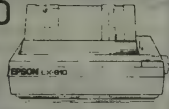

80 Column
200 CPS Draft
30 CPS NLQ
SmartPark Paper Handling
SelecType Front Control Panel
Built-in Tractor Feed

$158

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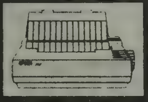
FX-850 PRINTER



80 Column
264 CPS Draft
54 CPS NLQ
SelecType Front Control
SmartPark Feature
Tractor Feed
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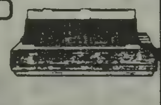
FX-1050 PRINTER THE WORKHORSE!



9 Pin Printer•132 Column
264 CPS Draft•54 CPS NLQ
SelecType•SmartPark Features
Push Feed Tractor
Optional Cut Sheet Feeder

TWO YEAR WARRANTY

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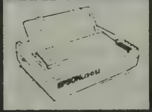
LQ-200 24 PIN PRINTER



Narrow Carriage
2 Year Warranty

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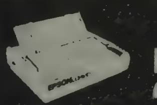
LQ-510 PRINTER



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512K Memory
Upgradable to 2MB

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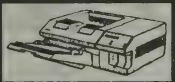

True Adobe PostScript High-speed RISC processor•Parallel, serial and Appletalk interfaces standard
HP LaserJet Series II emulation•Six page per minute print speed 35 resident fonts
2MB RAM standard, expandable to 6MB
MicroArt Printing with 300 X 300 DPI resolution•High-Capacity
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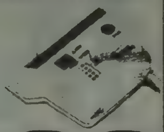

24-Bit Color Scanner
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4 1/2" Scan Width
Bus Card
Scan directly to disk

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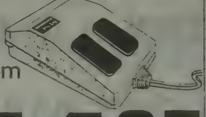
OMNI MOUSE II



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Customize Buttons

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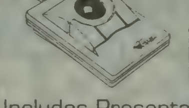
MOUSE SYSTEMS



20 to 6400 CPI • MS Compatible
Designer Pop-Up Menus
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Includes Presentation Magician Software

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LITTLE MOUSE ADB

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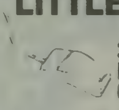

300 DPI Resolution
Full Optical Design for Unparalleled Cursor Tracking Accuracy
100% Apple Compatible
Includes NUPAINT DA Paint Program

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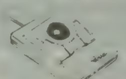

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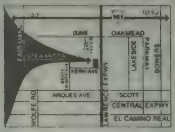
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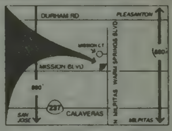
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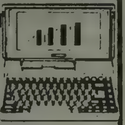

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Factory Refurbished
Full Factory Warranty.

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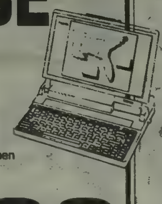

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Floppy Lightweight 5.9lbs.
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Serial / Parallel Ports
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Easy to Read Blue-On-White LCD
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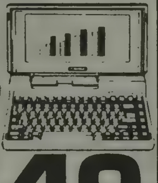

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720KB Floppy Drive
MS DOS 2.1
CGA Display Graphics
Runs on NiCAD rechargeable battery pack
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T1000LE

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1MB RAM Expandable to 9MB
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Clock/Calendar • MS DOS 3.3
6.5 lbs Lightweight Portable
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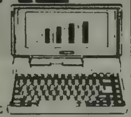
T1200XE

286 LAPTOP



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20 MB Hard Disk with 25ms
Average Access Time
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Easy to Read Blue-on-White Backlit
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(7.9 lbs.) • Slim 2" ThinSerial/Parallel Ports
Clock/Calendar • MS DOS 4.01 #1503713

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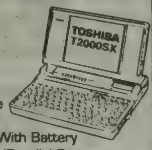
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T2000SX

INTEL 80386SX CPU 16MHz
Socket for 80387SX
Real Time Clock/Calendar
1MB RAM Expandable to 9MB
20 MB 25 MSEL Hard Drive
3.5" 1.44MB Floppy Disk Drive
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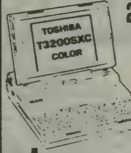
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T3200SXC
COLOR

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3.5" 1.44MB Floppy Disk Drive
VGA Gas Plasma Display
VGA Simultaneous Viewing
Color Active Matrix LCD
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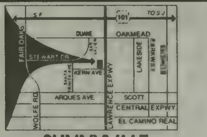
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DUANE
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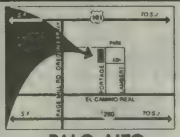
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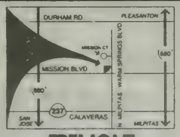
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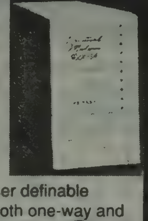

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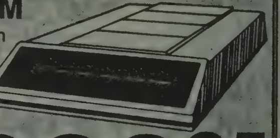

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V.42bis

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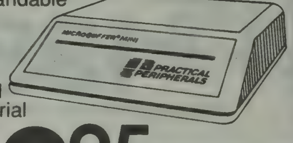

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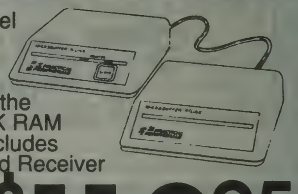

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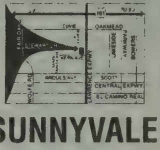

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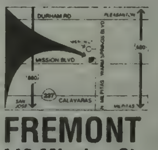

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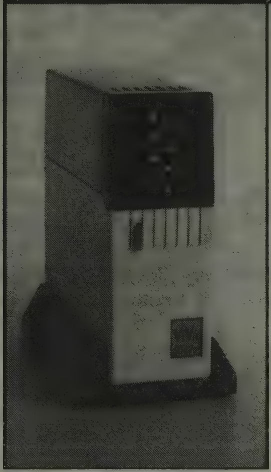

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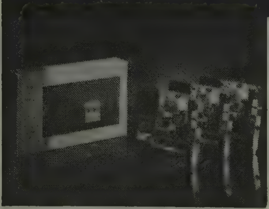

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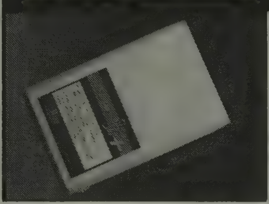

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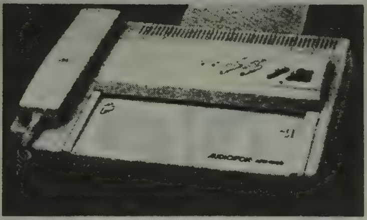

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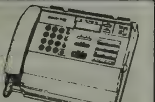

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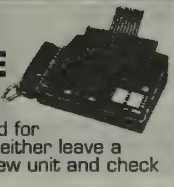

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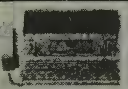

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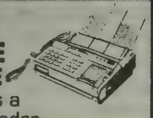

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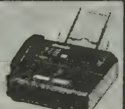

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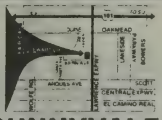

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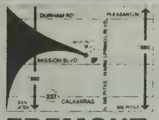

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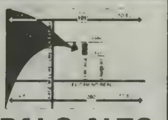

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MICROX

The MicroX software package from StarNet Communications turns a 286- or 386-based DOS PC into a low-cost, yet powerful graphics X-Windows Systems terminal. It is designed to function with most VGA cards to offer mono or color X-Windows from the network on a PC. On a 286-based PC with 640K, an Ethernet card, and a VGA card, users can see up to eight windows with 640 x 480 resolution. With 2MB of RAM on a 386-based PC, users can view ten windows in 256 colors. (List price $195 for MicroX-286, $345 for MicroX-386) StarNet Communications Corp., 3073 Lawrence Expwy., Santa Clara, CA 95051-0713. (408)739-0881.

QUIKMENU II

QuikMenu II, subtitled The Ultimate Program Manager, is a full-featured graphical menu system for all IBM PCs and compatibles. It is designed for users of all experience levels and offers 3D graphics, pop-up windows, and dialog boxes. QuikMenu's installation generates a menu by scanning the hard drive and automatically creating an icon for any program it recognizes. Additional programs can be added at any time. QuikMenu features a File

Continued

PRODUCT UPDATES

➤**Aci/Acius** released **4th Dimension v2.2.** Registered owners may upgrade for $50 until September 30, 1991. Aci/Acius, Inc., 10351 Bubb Rd., Cupertino, CA 95014. (408)252-4444.

➤**Brekshire Software** released **EQUIPD v2**, its equipment management and tracking software. Brekshire Software Co., 44 Madison St., Lynbrook, NY 11563. (516)593-8019.

➤**Fifth Generation Systems** released **Direct Access v5.1.** Upgrades are available for $25 with special corporate discounts for volume upgrades. Fifth Generation Systems, Inc., PO Box 83260, Baton Rouge, LA 70884-0359. 1-800-873-4384.

➤**Folio Corp.** announced **Folio VIEWS 2.1**, a new version of its text retrieval and hypertext authoring software that includes more than twenty-five new tools to automate the creation and management of infobase applications. Current users of 1.3 and 2.0 can upgrade for $195. Folio Corp., 2155 N. Freedom Blvd., Suite 150, Provo, UT 84604. (801)375-370.

➤**Inner Media** released **Collage Plus v3.0**, a screen capture and image management product for Windows and MS-DOS environments. Upgrades are $35. Inner Media, Inc., 60 Plain Rd., Hollis, NH 03049. (603)465-3216.

➤**Intex Solutions** introduced **Inventory Analyst v1.1.** New features include four additional built-in graphs for better visual analysis, the ability to build purchasing or production schedules based on up to fifty-two weeks of historical data, and new cost and unit scheduling methods. Intex Solutions, Inc., 161 Highland Ave., Needham, MA 02194. (617)449-6222.

➤**Via PC v5.30**, an integrated software package that sends and receives through both modems and fax boards from a single user interface, is available to registered owners for $95. **IDR UniCom, Inc.**, 400 Stenton Ave., Plymouth Meeting, PA 19462. (215)825-8181.

➤**MacroMind Director 3.0**, the latest version of **MacroMind**'s multimedia presentation and animation software, is now available. MacroMind, Inc., San Francisco, CA. 1-800-626-4048.

➤**Saber Software** released **Saber Menu System for Windows v1.1.** Saber Software Corp., PO Box 9088, Dallas, TX 75209. 1-800-338-8754.

➤**The Sundance Technology Group** released **v1.1** of its **Sundance System**—video post-production software and hardware for the Macintosh computer. This upgrade includes a serial interface for the Video Toaster. Sundance Technology Group, (212)869-1002.

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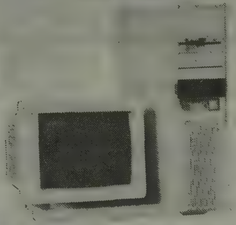

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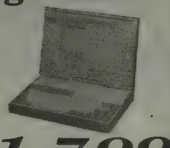

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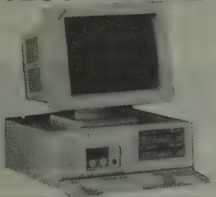

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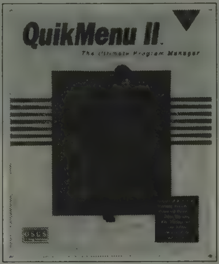
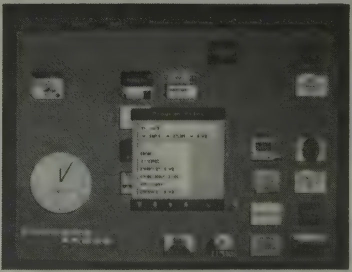


Manager that lets you perform most DOS functions, as well as several you cannot do with DOS. The Time Tracking feature helps you keep track of which programs you use, when you use them, and how long you use each one. ($69.95) OSCS Software Development, Inc., 354 N.E. Greenwood Ave., Suite 108, Bend, OR 97701. (503)389-5489.

COUNTERPOINT

Counterpoint is a graphical menu system that allows you to run all existing DOS and Windows programs from individually assigned and customized icons. Unlike other GUIs, Counterpoint does not need extended or expanded memory. You can paint your own icons with the supplied icon editor, select one from the library of over one hundred icons, or import a .PCX file. Counterpoint's multilevel drop-down menus and buttons make this an easy-to-use and attractive menuing system. Icons can be launched from a single keystroke or with a mouse. ($89.95) Triangle Publishing Corp., 633 Loma Prieta Dr., Aptos, CA 95003. (408)685-1318.



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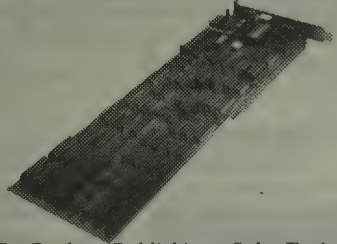

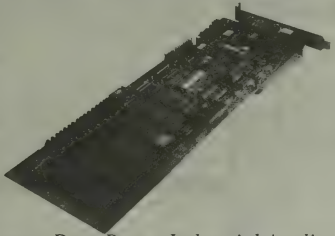

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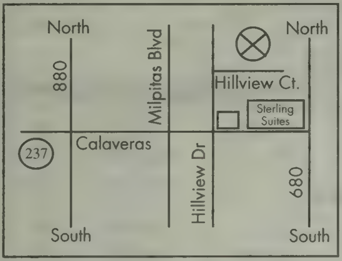

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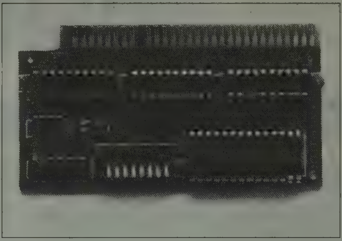
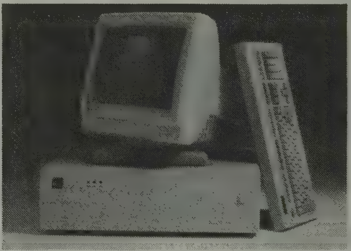


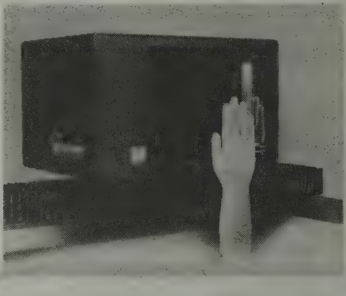
The GateKeeper PC Security Card, from JDR Microdevices, protects your computer and data from unauthorized access. This easily installed card begins working immediately, preventing your computer from starting until one of fifteen authorized passwords is entered. Following authorization, the card becomes invisible to the computer, preventing detection and conflicts with other I/O ports and memory maps. It is transparent to all hardware and software, including MS-DOS, UNIX, XENIX, DR-DOS, and OS/2. This 8-bit card is compatible with 8088, 286, 386, and 486 PC-compatible systems. ($49.95) JDR Microdevices, Inc., 2233 Branham Ln., San Jose, CA 95124. (408)559-1200.

POLYWELL 3486/ZEN



The new Poly 3486/ZEN computer system permits rapid upgrades at competitive prices. By changing the CPU, the system jumps from a 386 to a 486. Based on a convertible US-made motherboard, this system is compatible with both AMD and Intel CPUs, including the new AMD 386/40MHz and the upcoming 486/50MHz. The motherboard has two sockets, one for the 486 CPU and the other for the 386 CPU. The standard system comes with a 33MHz 386, 64K cache, 4MB RAM, 80MB Maxtor hard drive, Teac floppy drives, and a 14" high-resolution monitor. The ISA bus has five 16-bit slots, two 8-bit slots, and one 32-bit slot. Polywell offers a five-year warranty. ($2500) Polywell Computers, Inc., 61-C Airport Blvd., S. San Francisco, CA 94080. 1-800-999-1278.

CYBERWARE 3D COLOR DIGITIZING



The new entry-level 3D digitizer from Cyberware, the 3030LN, captures a highly detailed 3D color image of an object for use in computer applications. The 3030LN employs the same optical unit used in Cyberware's high-end digitizers, but on a simplified desktop platform. It can scan one side of an object in less than thirty seconds with the resulting 3D color model immediately available on an IBM-compatible personal computer or a graphics workstation. Users can manipulate and meas-

Continued on page 152

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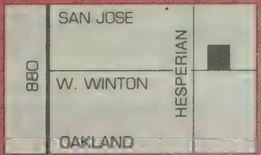

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- Intel Chipset
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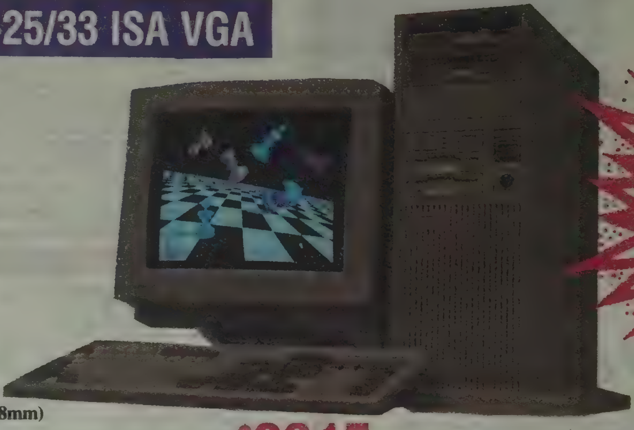
- 128K External Cache (exp. to 256K)
- 4 MB RAM exp to 64 MB (70ns)
- 120 MB Hard Drive (15ms)
- 5.25″ (1.2 MB) TEAC floppy drive
- 3.5″ (1.44 MB) TEAC floppy drive
- IDE FDD/HDD controller
- 2 serial, 1 parallel, 1 game port
- Orchid Prodesigner II 16 bit SVGA card with 1 MB
- 14″ Super VGA monitor (1024x768 .28mm)
- 101 enhanced keyboard
- Middle tower case with power supply
- FCC Class B Approved



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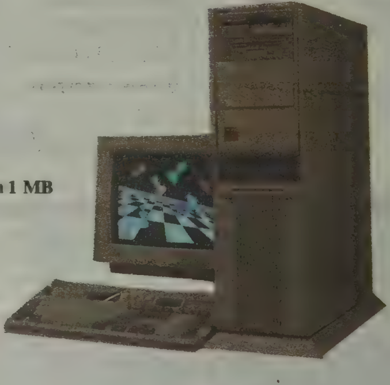

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- Socket for coprocessor
- 64K Cache RAM
- 4 MB RAM exp to 16 MB (70ns)
- 120 MB Conner hard drive (19ms)
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- 3.5″ (1.44 MB) TEAC floppy drive
- IDE FDD/HDD controller
- 2 serial, 1 parallel, 1 game port
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- 14″ Super VGA monitor (1024x768 .28mm)
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- 40 MB Hard Disk 25ms
- 1.2 MB TEAC Floppy Drive
- 1.44 MB TEAC Floppy Drive
- IDE Controller
- Mono or VGA Monitor 1024x768
- MGP Or 16-Bit VGA Card 1024x768 w/512K
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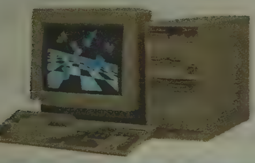

386SX-16 MHz 40 MB & DUAL FLOPPY

LANDMARK=21 MHz

- 1 MB RAM Exp to 8 MB
- 40 MB Hard Disk 25ms
- 1.2 MB TEAC Floppy Drive
- 1.44 MB TEAC Floppy Drive
- IDE Controller
- Mono or VGA Monitor 1024x768
- MGP Or 16-Bit VGA Card 1024x768 w/512K
- 2S/1P/1G
- 220W Power Supply
- Baby AT Case or Mini Upright
- 101 Enhanced Keyboard

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- 40 MB Hard Disk 25ms
- 1.2 MB or 1.44 MB TEAC Floppy Drive
- IDE Controller
- Mono or VGA Monitor 1024x768
- MGP or 16-Bit VGA Card 1024x768
- 2S/1P/1G
- 220W Power Supply
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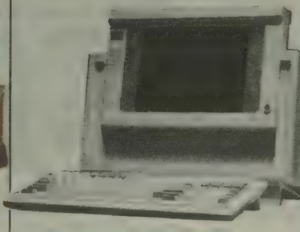

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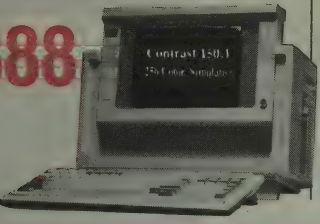

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- 2S/1P Ports
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- Contrast Ratio 12:1
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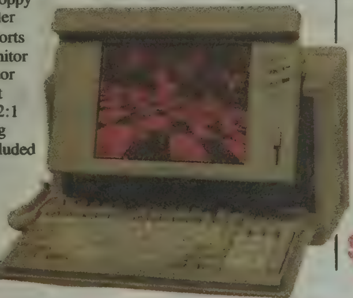

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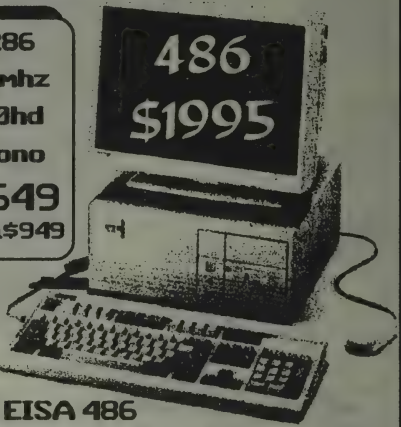

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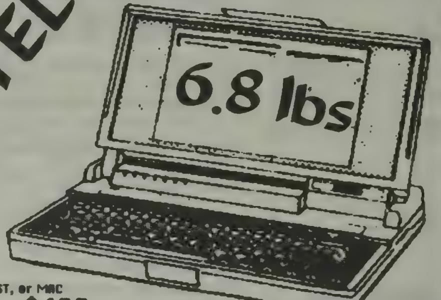

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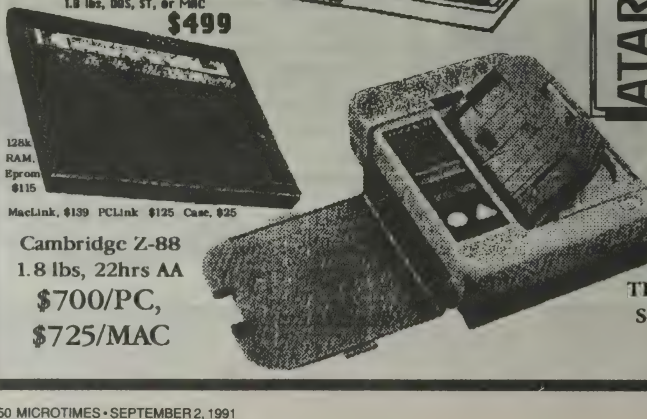

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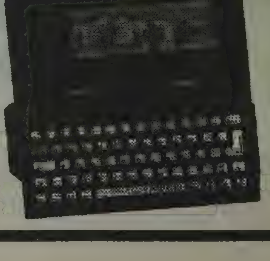

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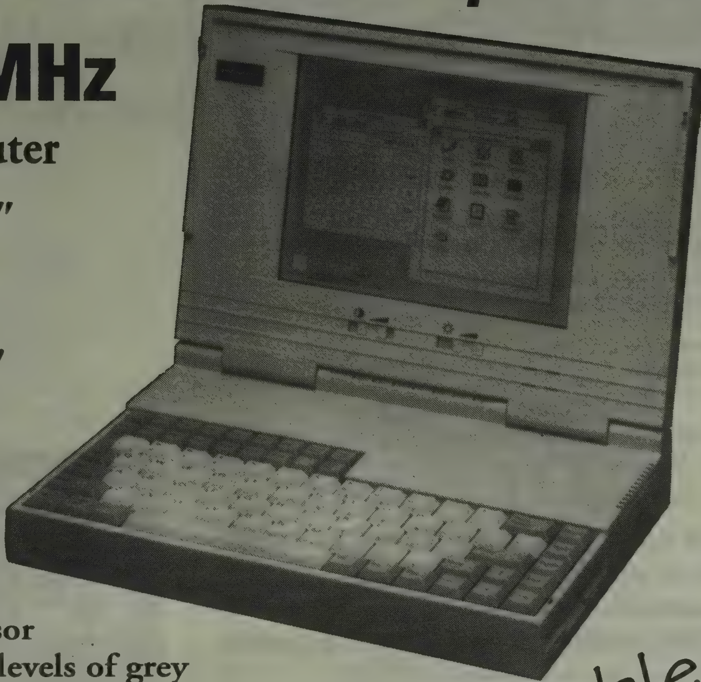

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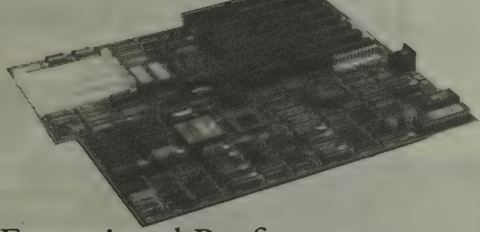

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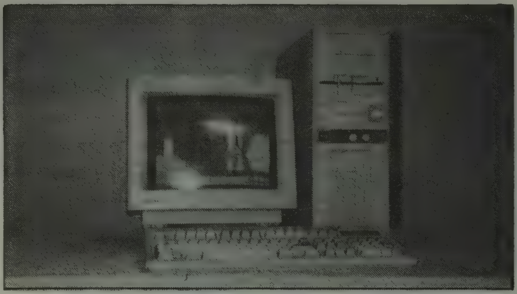

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PRODUCT SPOTLIGHT

Continued from page 146

ure the model, as well as send the data to an automated milling machine or 3D prototyping equipment to create a physical model. Cyberware software supports IBM-compatible PCs with or without the Irisvision/24 3D rendering hardware from Silicon Graphics. ($29,500) Cyberware, Inc., 8 Harris Court, Monterey, CA 93940. (408)373-1441.

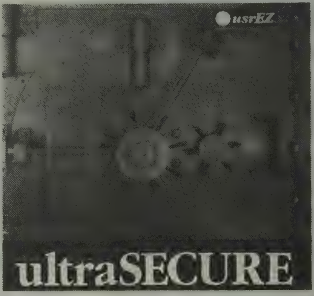
MACINTOSH SOFTWARE

PICTUREPRESS IMAGE COMPRESSION

PICTUREPRESS

PicturePress 2.0, the newest version of Storm's compression software, meets the latest international JPEG committee specifications (CD-10918-1) finalized in March. In addition to the speed in which it will compress still-images, PicturePress takes advantage of virtual memory under Macintosh System 7.0, supports TIFF and other file formats, offers true support for grayscale images, and allows users to create and store custom image quality settings. Like the earlier version, v2.0 offers three compression methods: JPEG, JPEG++, and Lossless. With JPEG++, Storm's proprietary algorithm, users can assign different quality levels to various parts of an image to achieve the highest compression with the best image quality. PicturePress 2.0 operates as a standalone software package or with Storm's PicturePress Accelerator, a programmable NuBus card. ($999) Storm Technology, Inc., 1101 San Antonio Rd., Suite 101, Mountain View, CA 94043. (415)691-1111.

ULTRASECURE SECURITY SOFTWARE



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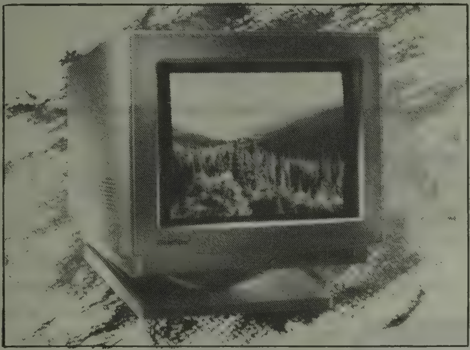

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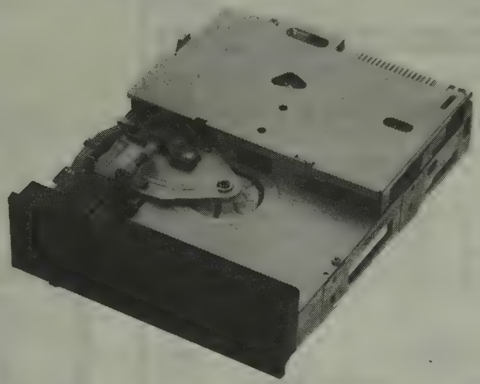

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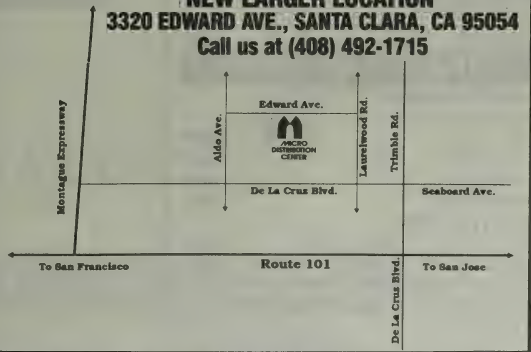
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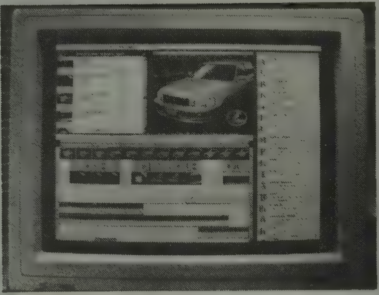


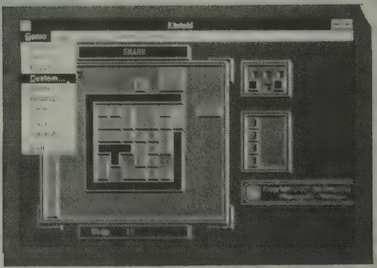
Developed to take advantage of Apple Computer's new QuickTime media-integration system, ReelTime allows users to produce videos for a wide variety of uses, including internal communications, interactive training, online video help, and video publishing. An easy-to-use, windowed environment, ReelTime allows users to import video, PICT, PICS, SoundEdit, and AIFF files, and assemble them with powerful features like A/B roll, transitioning, and digital special effects. Movies assembled with ReelTime can be viewed on the Macintosh or copied to NSTC- or PAL-compatible tape formats. ($699) SuperMac Technology, Inc., 485 Potrero Ave., Sunnyvale, CA 94086. (408)773-4498.

GAMES

By Mike Markowitz

KLOTSKI V1.1

Published By: ZH Computer
For: IBM PC or compatible; requires Windows 3.0
List Price: $49.95



Despite the offensive ethnic jokes, Poland has long been a land of great mathematicians and logicians. One result of the recent changes in Eastern Europe is the appearance of software created by native Polish programmers for the Western computer game market.

Klotski (or Klocki) is the Polish word for blocks. The original game was a small wooden board that could be arranged into several puzzles, where the blocks were manipulated until a master block was freed. Polish children played this game to develop basic strategy skills. The author of this program remembers playing this game as a small child. Now a programmer and artist, he has recreated these puzzles as a Windows-compatible program.

Twenty-four Klotskis are included with the program. But the real challenge is to design your own puzzle—an art that compels you not only to use your imagination, but to demonstrate your abilities in problem-solving strategy.

Klotski is a colorful, challenging, and very pleasing game. It automatically installs itself in the Games group, right alongside the solitaire and Reversi games provided by Microsoft. Windows 3.0 is a good environment for games, and a huge potential market, so it is encouraging to see that even a very small publisher is able to develop and market such a product. (ZH Computer, Inc., PO Box 39764, Edina, MN 55439. 612/432-8461)

JACK NICKLAUS'S COURSE DESIGNER'S CLIP ART, VOL. 1

Designed By: Ned Martin
Published By: Accolade
For: Amiga or IBM PC and compatibles, requires Jack Nicklaus's Unlimited Golf

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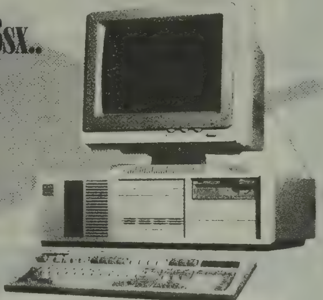

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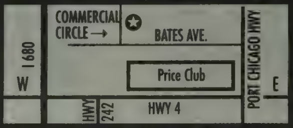

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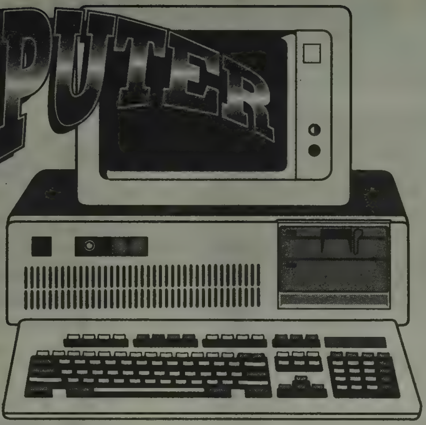

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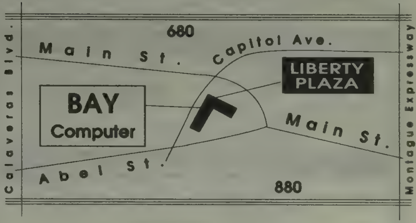

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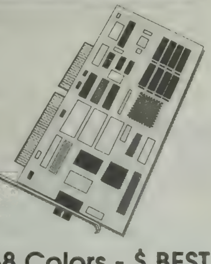

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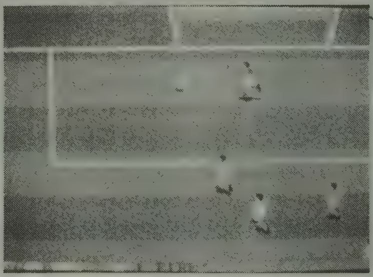
Nothing succeeds like success. The Course Design option in Accolade's Jack Nicklaus Unlimited Golf was evidently so popular that we now have this two-disk package, including seventy-three objects (trees, rocks, buildings), nine backgrounds, and three plots of land (desert, meadow lakes, and Carribean shore).

The package also includes a new ready-made golf course, Desert Highlands in Arizona. This requires yet another copy-protection code wheel—this seems rather unnecessary since the disk is useless without the original program, but as Oscar Wilde observed, nothing succeeds like excess. (Accolade, Inc., 550 South Winchester Blvd., San Jose, CA 95128. 408/985-1700)

WORLD CLASS SOCCER

Published By: US Gold (distributed by Accolade)
For: IBM PC and compatibles (512K), CGA, EGA, VGA or Tandy 16-color graphics, Joystick required. Amiga version also available. Package includes 5.25" and 3.5" disks
List Price: $44.95

The world's most popular sport has been particularly resistant to computer game simulation because (compared with the utter simplicity and snail-like pace of baseball) there is always so much fast, complex action happening on the field.



The program manages a good simulation by the simple design expedient of making the joystick control only the player who is closest to the ball. Once a player has control of the ball it will stay "locked" to him until it is either kicked or taken from him by another player. The player's chances of taking the ball away from an opponent depends on their relative skill ratings.

It's unusual to see a game that requires a joystick to the exclusion of other pointing devices, such as a mouse. It is possible to play World Class Soccer by defining keyboard controls, but this is neither simple nor fun. This seems to limit the game's potential market to hard core gaming fanatics. Very few PC's have the two joysticks that are needed for the two-player option.

World Class Soccer fills all but 2K of a 360K floppy disk. The main program is a 63K .COM file.

A sixty-five page manual includes team statistics, player profiles, and game descriptions from the 1990 World Cup competition in Rome.

NOTES AND OPINION

Logitech (6505 Kaiser Drive, Fremont, CA 94555. 510/795-8500) has announced, for shipment in the first quarter of 1992, a new 3D mouse based on ultrasonic position detection. This is much cheaper to manufacture than previous designs based on various electromagnetic position detection technologies. The new five-button device operates as a standard mouse when moved on a flat surface, but it can be lifted off the surface to generate x-, y-, and z-coordinate inputs anywhere within a 24" cube. Pitch, yaw, and roll movements are also measured, to .1 degree accuracy.

The setup includes a "reference array" of three small ultrasonic speakers on a tripod base, a separate power supply, and the serial mouse itself. A control unit includes its own microprocessor and firmware. Since the mouse design already includes a microphone, Logitech cleverly added an "audio-out" line for connection to future

Continued on page 164

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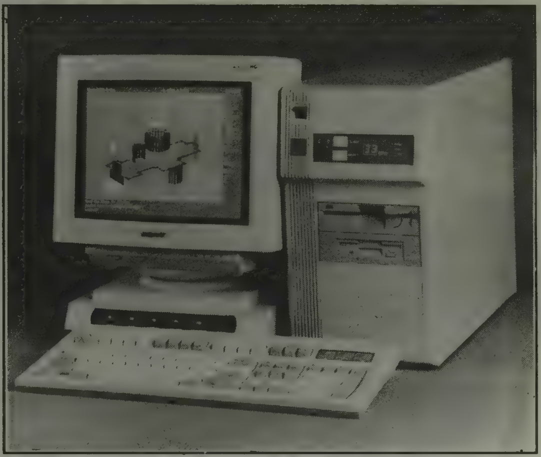

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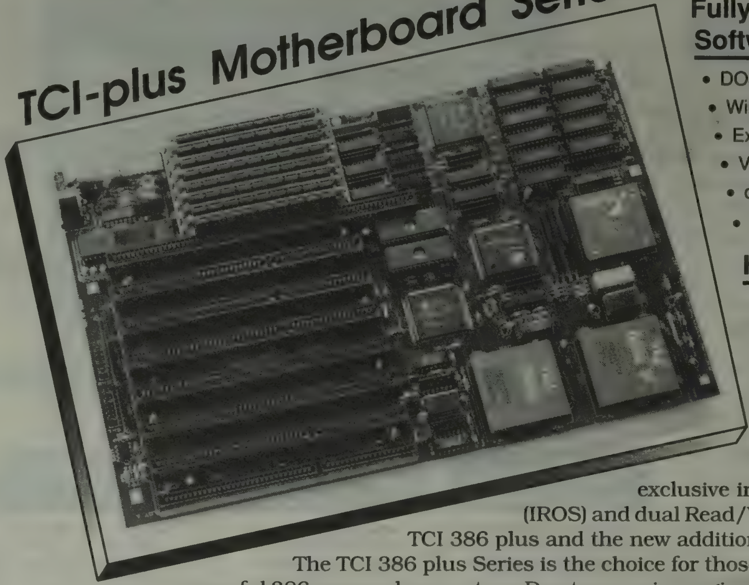

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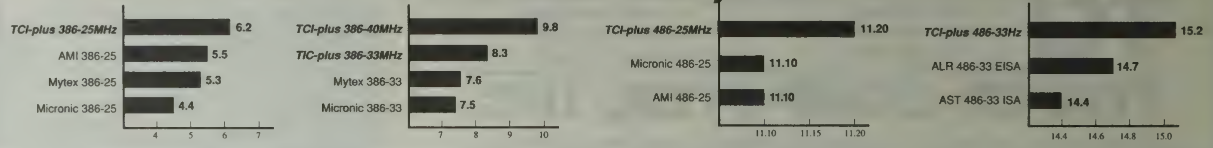

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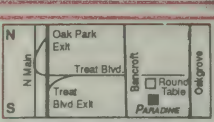

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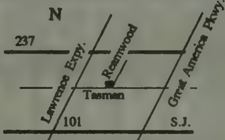

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PRODUCT SPOTLIGHT

Continued from page 158

voice control or speech recognition systems. Logitech also plans to incorporate this technology into virtual reality "head trackers" allowing a user to control appropriate software by moving his or her head.

With a list price over $600, this next generation 3D mouse is not likely to be supported by consumer-oriented entertainment software, but if the price could be brought down below $200, I bet that gamers would demand it and game designers would rush to support it. Somebody ought to be working out the interface standards right now, so that the pieces will be in place when the technology becomes affordable to a consumer mass-market.

The Software Publisher's Association (1730 M Street NW, Washington, DC 20036-4510; 202/452-1600) releases a monthly report on the top-selling MS-DOS games, based on reported sales of four major retail chains: Babbages, CompUSA, Electronics Boutique, and Walden.

In June the top ten titles were:

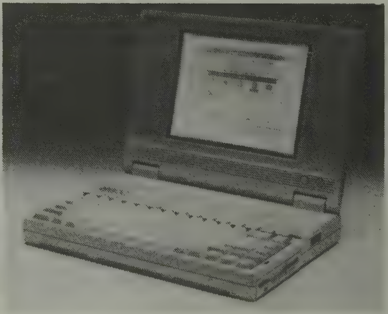
1. King's Quest V (Sierra)
2. Jetfighter II (Velocity)
3. Wing Commander (Origin)
4. Space Quest IV (Sierra)
5. Flight Simulator (Microsoft)
6. Eye of the Beholder (Strategic Simulations)
7. Sim City (Maxis)
8. A-10 Tank Killer (Dynamix)
9. Links (Access)
10. SimEarth (Maxis)

LAPTOP REVIEW

NBCC 386SX/16MHZ PC NOTEBOOK

Manufactured By: NBCC
List Price: $2995
Reviewed By: Anna Couey

If you're looking for a laptop that combines portability with enough power and versatility to function as a desktop machine, NBCC's 386SX/16MHz PC Notebook is one to strongly consider.



Weighing 7 lbs. with notebook dimensions of 12.2" x 8.5" x 2", the NBCC 386SX/16MHz PC Notebook is easily portable—so much so, you might find, as I did, that it begins to accompany you everywhere, just in case.

The unit offers enough computing power and ports to handle most office needs, with optional features to increase memory or number crunching capability. The basic unit features a 20MB hard drive (40MB drive optional), 1MB RAM (expandable to 5MB), 8.5" VGA monitor with 640 x 480 resolution, and a 1.44MB floppy drive. It contains two serial ports to support a mouse and a modem, and a parallel (printer) port, as well as ports for an external monitor and keyboard. Also included is an external AT-bus connector expansion slot for other peripherals.

The NBCC PC Notebook comes bundled with DR-DOS 5.0, which was fully MS-DOS compatible for all applications I used. The unit also comes with drivers for Windows 286/386 and 3.0, Lotus 1-2-3, AutoCAD, Ventura Publisher, and WordPerfect, among others. If you use Wordstar, no driver is needed.

People complain about Notebook keyboards; I actually preferred

Continued on page 169

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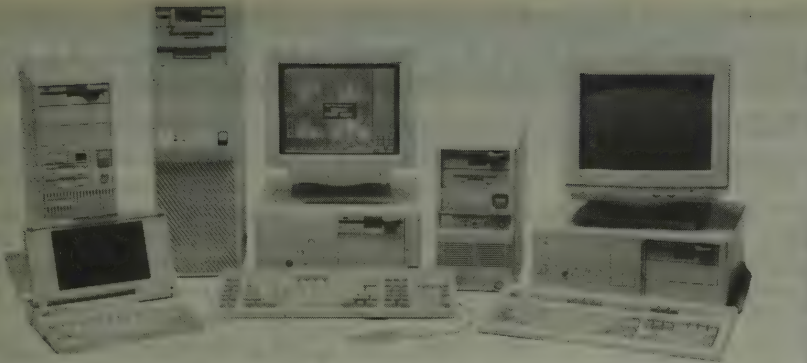

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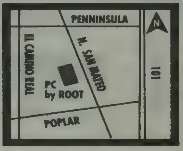

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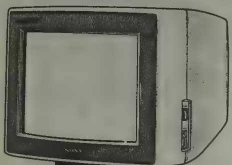

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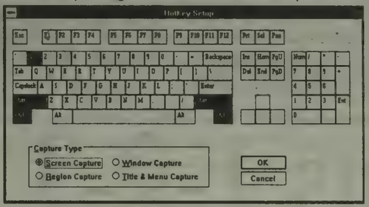

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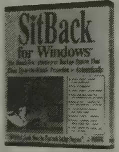

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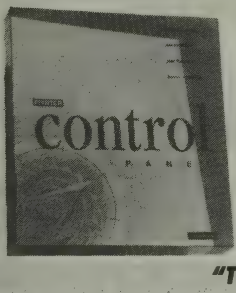

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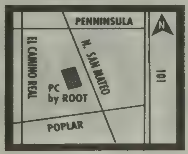

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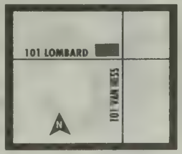

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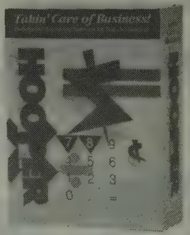

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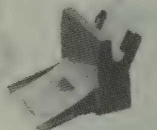

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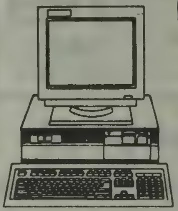

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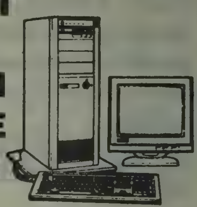

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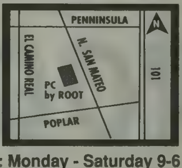

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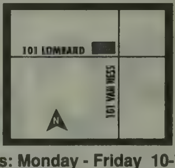

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Continued from page 164

the 82-key NBCC PC Notebook keyboard to the desktop keyboards I use in the office. It's responsive without being mushy; and the keys are a comfortable distance apart. If you're used to the Shift key being below the Ctrl key, you're in for a switch, but I never found this to be a serious adaptation problem.

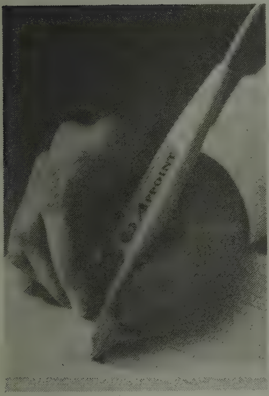
The NBCC PC Notebook battery lasts three hours—recharge time is about an hour. The unit can be configured with a variety of power on/time out settings, depending on whether your priority is energy conservation or speed.

NBCC has also recently released a 20MHz version of this Notebook, with a 40 or 60MB hard disk, expanded display, and a fax/modem card. NBCC USA is a subsidiary of NBCC Japan, an OEM. The 386SX/16MHz is the company's first portable. (NCBB USA, 19800 MacArthur Blvd., Suite 1450, Irvine, CA 92715. 714/490-1403)

THE MOUSEPEN PROFESSIONAL

Manufactured By: Appoint
List Price: $99.00
Reviewed By: Birrell Walsh

In the mail the other day came a welcome upgrade to a good idea: The MousePen from Appoint.



It is a mouse shaped not as a soap-bar (as are most mice) but as a pen. The buttons are on top, where your index finger can tap them without great effort, or hold them down for drawing or dragging. It is designed for use with a laptop: It is attractively stored in a packet the size of an eyeglass case, and it comes with a small mousepad and inkstand-style holder that can be stowed with the MousePen in your laptop's carrying bag.

I say upgrade. The earlier version was "pretty good," and in this version they have listened to user feedback. The Pen cartridge is more comfortable to hold and the buttons are easier to use. It writes at a wider variety of angles. The resolution modes (dynamic gain or linear) can be toggled with a switch on the barrel of the pen.

If you bought a portable with VGA resolution to use Windows on the road, you know the frustration of trying to move a mouse on cramped airline seat-tables. The MousePen is well adapted to close quarters and stores inconspicuously when you are not using a graphic application. (Appoint, Inc., 1332 Vendels Cr., Paso Robles, CA 93446. 1-800-448-1184)

MACINTOSH HARDWARE REVIEW

TRACKMAN & MOUSEMAN

Manufactured By: Logitech
List Price: $149 for TrackMan; $129 for MouseMan
Reviewed By: Michael Robin

Continued

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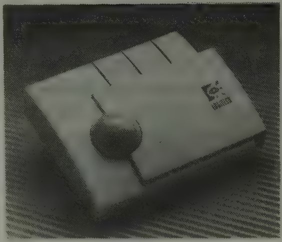
Every Macintosh computer comes with a straightforward, sturdy mouse; it has one button that you click to perform a variety of operations. Why would anyone want to replace it with another mouse or even switch to a stationary mouse, also called a track ball when the mouse that came with the Mac works just fine? Also, what's the big deal that Logitech has entered the Macintosh market with MouseMan and TrackMan?

The reason this is interesting is that Logitech has been building pointing devices for other people since 1981, including for the Macintosh. During the past decade they have learned a few things and used this knowledge in building their mouse. These devices are well designed, integrating three buttons and an ADB "pass-through" plug that lets you plug another ADB device into the computer.

Through years of using pointing devices, Logitech has become aware of several things. Because there are left- and right-handed users they have designed two versions of MouseMan. Also, rather than use a standard billiard ball-sized track ball, Logitech uses a much smaller ball that you control with your thumb. They understand that the thumb is the most dexterous and sensitive part of your hand.

The real strength of these devices is MouseKey, Logitech's control panel software that lets you "make the mouse and its buttons function exactly as you want." The main options here are: Mouse Tracking, Double-Click Speed, Sensitivity, Orientation for TrackMan, and programming the three buttons. The first two, Tracking and Click Speed, are the same that come with every Mac system.



Sensitivity controls the distance and accuracy of the pointer as it travels. On High, a slight move will take the pointer across even the largest screen. On a Classic, for example, a quarter turn of the track ball takes the pointer across the screen. Orientation establishes the direction in which the pointer moves in relation to the ball. This lets you hold TrackMan in the manner most comfortable for you and still have the pointer move in a natural or intuitive direction.

In MouseKey, you assign the keys or different clicks—single, double, triple, or click lock—to the buttons. You can do this for the Desktop as well for each application. MouseKey accepts all but "Caps Lock" as a button assignment, and the manual claims there is no limit to the number of applications you can do this for. This allows you to program your most frequently used key strokes. For the Desktop, I have the buttons set for: a single click,

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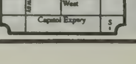

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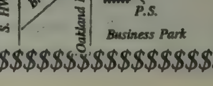

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COMPUTER SHOPPER
June, 1991 P. 246

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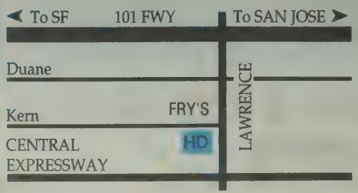
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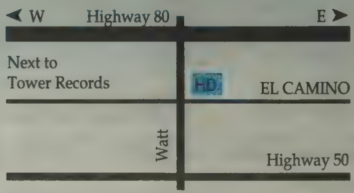
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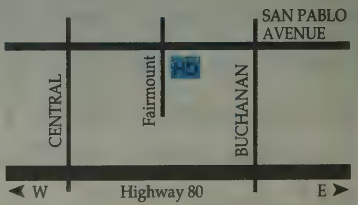
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The Apple mouse has been a reliable device since I started using a Mac. However, the Logitech mouse and track ball add greater sensitivity and greater functionality to a tool we already use heavily. (Logitech, Inc., 6505 Kaiser Dr., Fremont, CA 94555. 510/795-8500)

MACINTOSH SOFTWARE REVIEW

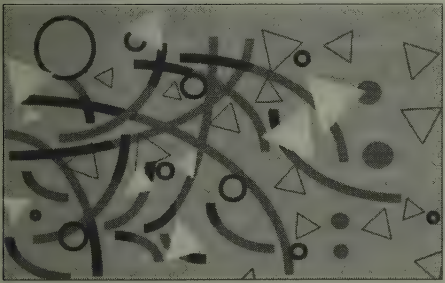
JAG

Published By: Ray Dream
List Price: $99.95
Reviewed By: Matthew Leeds

There is a trick to making artificial images look good. It's a simple trick that nature plays on us. Look around and you'll see it everywhere. Nothing has a hard visual edge to it. There is almost always a small but perceptible blending, a smoothing from one object to another. This blending is what's missing from computer generated images. Diagonal lines on the computer look jagged because they're missing that natural blending.

JAG (Jaggies Are Gone) is a post-processing, anti-aliasing utility. It reads PICT and PICS files and effectively blends and smooths either a single file at a time or in a batch mode. It can accept files of any number of bits and size (up to 4K by 4K), and output 8- or 32-bit files. It can optionally dither in 8-bit mode using the System palette or an adaptive palette. You can also have it preserve thin lines, remove isolated pixels, and remap colors to NTSC legal levels for broadcast output.

Helena Powell/LuminArts



It can display images full-screen without the menu or scroll bars, and it can single-step through PICS files. JAG uses a virtual memory technique to open files larger than available memory, and offers Balloon Help to System 7 users. It turns out to be much faster to use rendering programs with their anti-aliasing option turned off and then run the results through JAG.

Pepe Moreno, the author of Digital Justice and a JAG beta tester says, "It's a very good automatic way of getting rid of the jaggies without having to burden a rendering program, and without having to concern yourself while you are illustrating. The only other alternative you have is using Photoshop in 24-bit mode. I use JAG as a processing program. When I'm finished with something I just put it into JAG to get the image looking good."

JAG is not perfect. Not all images look better after they have been run through JAG, and the user interface could use some tweaking, but JAG may become an important utility in the multimedia artist's toolbox. (Ray Dream, Inc., 1804 N. Shoreline Blvd., Mountain View, CA 94043. 415/960-0768)

VIDEO QUILL

Published By: Data Translation
List Price: $495, Font Pack $495
Reviewed By: Matthew Leeds

Video
Multimedia
Slides
Desktop Publishing
Quill
Video

The Macintosh has made great inroads into the video market in the last year. This success has been in part due to the appearance of the necessary tools—tools that take the place of specialized equipment used in professional video. Video Quill attempts to replace one of those tools, the character generator, and is only partly successful.

Video Quill is essentially a text

Continued on page 186

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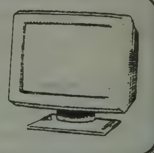

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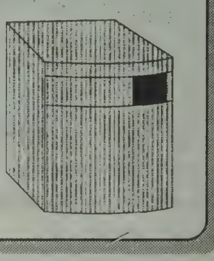

Here is something HSC does not get every day...Audio gear! This ADC Soundshaper Subwoofer (Model 3015) is small in size (11" x 7.5" x 17") but big on performance. Feed the output of both channels from your stereo amplifier into it, and then hook your left and right satellite speakers onto its output terminals. The first-order crossover sends frequencies from 110 Hz and above to the satellites, and the 41 to 165 Hz band is reproduced by the 8" dual voice coil, high-flux driver. It can handle 150 Watts peak, 50 Watts RMS into 4 ohms impedance. The cabinet is a high-fashion metallic charcoal black, with a structural foam noryl front cover and black textured vinyl over high-density particle-board sides. The sensitivity is 88 dB +\- 1 dB (1 Watt at 1 Meter) and the whole unit weighs 15.5 lbs. These are brand new in the carton, and sell for $99.00, but only while they last!

ADC Subwoofer HSC#12480 **$99.00**

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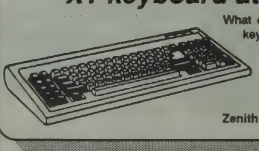

What else is there to say? An 84-key XT-compatible keyboard with Caps, Num and Scroll Lock Status LED's for the low, low price of $24.95! Standard IBM layout, coil cord, 5-pin DIN plug, made for Zenith Data Systems, new in shipping carton, 90-day warranty. Get 'em while they last!

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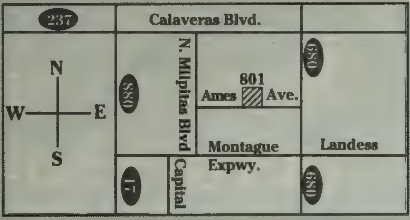

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386-SX16	$415
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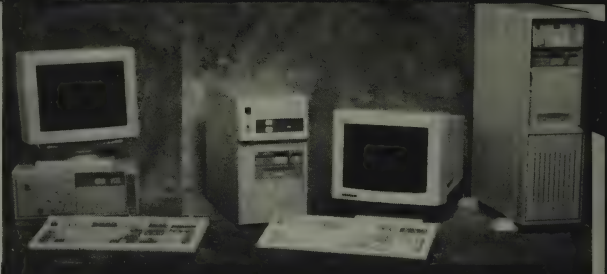

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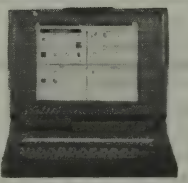

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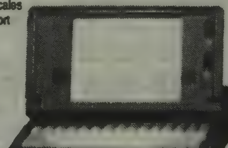

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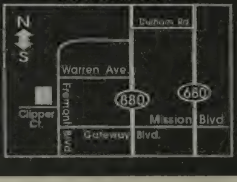

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IBM LAPTOP 386/061	5285

• APPLE

MAC Classic 2/40	CALL
MAC II LC 2/40	CALL
MAC SI 5/80	IN STOCK
MAC IIcx/40 MB	$3575
MAC IIci	CALL
Apple Laser Writer IINT	3199
MAC External 80 MB	700

THIS MONTH'S SPECIALS

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AMI 486-33 Cache System	2600
Maxtor Tahiti Erasable Opt 1.2 Gig	2600
CDC 4181-702 700 MB HD	1500
CDC 94171-3505 350 MB HD	910
XT43809 250 MB HD	975
XT4170S 150 MB HD	700
XT8760S 676 MB HD	1595
Usrobotics Dual: Std. Ext	835

MOTHERBOARDS

• MICRONICS

386-25 MHz/Cache BMP/BCP	CALL
386-33 MHz/Cache ACP/BCP	CALL
486-25 MHz/Cache ISA/EISA	CALL
486-33 MHz/EISA ISA/EISA	CALL

• AMI

386-SX-20/Cache	CALL
386-25/Cache	$950
386-33/Cache SCREAMER	1195
486-33 MHz/EISA ISA/EISA	CALL
486-25/33 MHz/Cache ISA/EISA	CALL

• MONITORS

Seiko VGA CM1440/1450/2050	CALL
NEC 3D/4D/5D	$595/985/1995
Nanao 9070S/9070U	925/975
Sony 1304	615
Hitachi CM2085+ (1280x1024)	CALL
Cornerstone (1600x1280)	1725
Mitsubishi	All Models CALL
RasterOps	All Models CALL
Panasonic 1391/1381	329/379
Toshiba 17"	1350

• PRINTERS

Panasonic 1624/1124	$365/259
Fujitsu DL 3400/5600	375/135
Okidata 320/321	325/455
Okidata 390/391	455/625
CAnon BJ 1030E	675
Toshiba 351/341SL	899/599
HP Laser Accessories	CALL
HP Laser Jet III/IIP.	1550/820
HP Desk Writer	690
Panasonic Laser 4450/4450i/4420	CALL
Cannon Laser 811	1550
Seiko Label	170
QMS/IBM	CALL

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Maxtor All Models	SPECIAL
IDE All Models	SPECIAL
Seagate All Models	SPECIAL
Western Digital 40/80 MB	SPECIAL
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NEC 40/150 MB All Models	CALL
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CD ROM NEC	475

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WD 1007 ESDI SE2	165
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Metheus 1140/Primer	CALL
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Cobra 1 B3 1024x800 (256)	SPECIAL
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Edsun CEG RAM DOC	375

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Trackman .... **85** Microsoft 400dpi	98
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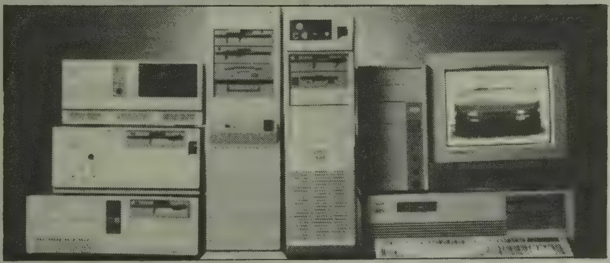

• FAX

Sharp FO-120/216	$449/579
Murata M1700	699
Samsung FX-1010	364

• PLOTTERS

H/P 7550A/7475QA	CALL
Roland DYX/DPX/GRX	CALL
Hitachi	CALL
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UMAX UC-300 Color	CALL
Numonics	476
Plustek	CALL

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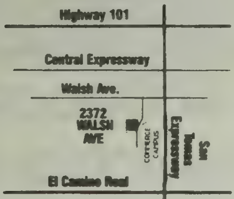

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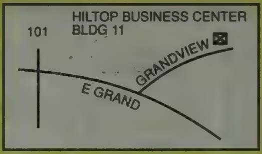

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So. San Francisco, 94080
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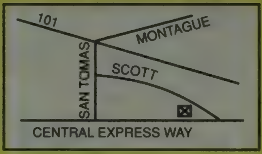
Fax:415-266-9134



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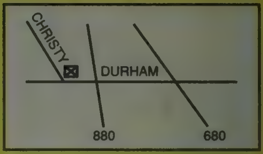
Santa Clara, CA 95054
408-980-0602
FAX:408-980-0604



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445	386SX-20	775
595	386-33	925
1095	486-33	1425

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386-33 WITH 4MB	560
486-33 WITH 4MB	1,060

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80MB,18 ms	280
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ULTRA	95

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AMI Enterprise II 486-33 4MB	CALL
AMI SCSI Cache EISA OK	CALL
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COMPUTERS INC.

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		w/8MB	1750
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386-25	BMP	w/4MB	620
386SX-20		w/2MB	420

MYLEX 486-33 EISA ...SPECIAL

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- 14″ Color Super VGA Monitor 1024x768 .28 Dot
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COMPLETE SYSTEM WITH COLOR SUPER VGA MONITOR & 40 MB HD

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- One MEG of 80ns Memory Standard
- 14″ Color Super VGA Monitor 1024x768 .28 Dot
- Super VGA Card with 512K
- Two Serial/One Parallel
- 16-bit 1:1 Hard Disk/Floppy Controller
- 101 Enhanced Keyboard

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W/CACHE, 4 MB RAM, 80 MB HARD DISK

SYSPER 486 Systems Include:

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$1549

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WITH ORCHID PRO IIS
1 MB CARD

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Sony Tube .25 Dot)
SUPPORTS 72 Hz AT
ALL RESOLUTION WITH ORCHID
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$765

VIEWSONIC 5E SVGA
MULTI SYNC NON-INT MONITOR
WITH FLICKER FREE 72 HZ
ET4000 GRAPHIC CARD w/1 MB

$595

VIEWSONIC 6 SVGA
NON INTERLACED
FLICKER FREE 72 Hz
ET 4000 GRAPHIC CARD w/1 MB

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MONITOR AND CARD
w/512K (1024x768)

$355

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14″ MONO PAPER WHITE	99
14″ MONO VGA	125
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14″ SONY 1304 NON-INT	595
14″ VIEWSONIC 4 (1024x768)	329
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NEC 110 MB ESDI	545
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MAXTOR 80 MB IDE	295
MAXTOR 200 MB IDE	625
MAXTOR 330 MB ESDI	1075
PRIAM 330 MB SCSI	1125
CONTROLLERS	
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2400 BAUD MODEMS	$59
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w/512K, 1 FDD, IDE, 101 KB, CASE w/P.S.

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WITH 40 MB HARD DISK, 2 MB RAM and LCD VGA SCREEN.

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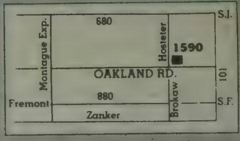

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California Resellers!

✦ Be a part of the MicroTimes 1991 Computer and Software Buyers' Guide

Maximize your sales and profits with the year-end issue of **MicroTimes**, on-street 12/9/91. This special issue is a year-round resource, featuring a comprehensive **Buyers' Guide and Reseller Directory** to make the most of your busiest selling season and bring you new customers in 1992. We invite you, as a reseller of computer products in California, to participate by completing and signing the attached **Reseller Poll** and mailing or faxing it to us no later than **October 1, 1991.**

✦ This Buyers' Guide Will Increase Your Sales

MicroTimes will showcase your store, your products, and your service. Here's your perfect opportunity to spotlight your store—tell your potential customers about the unique service your business offers, your in-house experts and the guidance they provide in such areas as LANs, Desktop Publishing, Accounting, and other specialties.

In addition to listing your store's name and other information alphabetically by geographical area, this year we're offering an additional feature to enable your prospective customers to find you quickly: **a separate directory of vendor-authorized sales, service, training and support providers.** So if you're authorized to provide these services for Novell, IBM, Apple, Sun, Hewlett-Packard, or other name-brand products, please give us that information so we include your name in the vendor-authorized listings.

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The year-end issue of **MicroTimes** will bring customers into your store during your most important selling season and throughout the following year. They'll see your message next to an exciting lineup of editorial features, including our writers' picks for the best hardware and software products of 1991 and over 30 pages of Buyers' Guide announcing new products and special offers—many of which you'll already have in stock, ready to sell!

You'll also benefit from our own special promotions of this exciting issue which will appear in October and November. **MicroTimes** will help you build the consumer excitement you need to ring up sales as you ring in the New Year.

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Complete the attached form and return it to **MicroTimes** before October 1, 1991. **If your store has more than one location, please use a separate form for each.**

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✦ For advertising information, call (415)934-3700 or (213)467-7878.

MicroTimes 1991
Computer and Software Buyers' Guide Reseller Poll

Mail to: Reseller Poll, 3470 Buskirk Ave., Pleasant Hill, CA 94523
Fax: (415)934-7351
Deadline: October 1, 1991

Store Name:____________________________

Store Manager:____________________________

Address:____________________________

City:________________ **State:**____ **ZIP:**____________

Phone:____________ **Fax:**__________________

What applications does your business specialize in, and who are your in-house experts for each specialty? (List up to three):

Specialty	Expert

What operating systems does your business support?

MS-DOS__ AmigaDOS__ UNIX/XENIX__ OS/2__ Macintosh __ Other (specify)__

List the three top-selling brands sold at your store in 1991:

____

What special value-added services (e.g. service, training, support, warranties, return policy, etc.) does your business offer? (Please keep responses under 25 words or we will edit them to fit available space.)

____

____

____

Are you a vendor-authorized sales, service, training and/or support source?

If so, please list up to five vendors (e.g. Sun, Novell, Hewlett-Packard) who have authorized your business to provide these services, and check the areas for which you're authorized.

Vendor	Sales	Service	Training	Support

I certify that all the statements made in this survey are true.

Name:________________ **Title:**________________

Signature:________________ **Date:**________________

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OPTI AMI
486-33 W/128K CACHE $1017

OPTI AMI
486-25 W/128K CACHE $970

OPTI AMI
486-33 W/64K CACHE $995

SYMPHONY AMI
486 SX-20 .... $778

SIS AMI
386-33 W/64K CACHE $614

RESTAURANT MANAGEMENT SYSTEM
INCLUDES SOFTWARE SUPPORT, INSTALLATION & TRAINING
$1600 + SYSTEM+ PRINTER

SIS AMI
386-25 W/64K CACHE $569

OPTI AMI
386-25 NO CACHE $516

VLSI TOPCAT NEW AMI 16MB SOCKET
386 SX-20 .... $424

VLSI TOPCAT NEW AMI 16MB SOCKET
386 SX-16 .... $402

HEADLAND AMI
286-16 .... $297

C & T AMI
286-12 W/512K MEMORY $279

BASIC SYSTEMS INCLUDE:

- 486/386/286 Motherboard
- 486/386/286 INTEL CPU
- 1MB RAM
- 101 Keyboard
- Teac 1.2MB or 1.44MB FDD
- Baby AT or Mini Tower Case w/PS
- 2 FDD & 2 HDD Contoller Card w/Cable

1 YEAR WARRANTY PARTS & LABOR ON SYSTEMS

MOTHERBOARDS

***486**	
486-33 w/256K Cache Eteq AMI	$341
486-33 w/128K Cache Opti AMI	297
486-33 w/64K Cache Symphony AMI	275
486-25 w/128K Cache Opti AMI	275
486SX-20 w/CPU Symphony AMI	528
***386**	
386-33 w/64K SIS AMI	$185
386-33 No Cache VLSI AMI	165
386-25 w/64K (Full) Opti AMI	176
386-25 w/64K Cache SIS AMI	174
386-25 No Cache Opti AMI	121
386SX-20 VLSI 16 MB AMI w/CPU	204
386SX-16 VLSI 16 MB AMI w/CPU	182
***286**	
286-16 Headland AMI	$82
286-12 C&T AMI	65

CASES

Baby AT Case w/200W PS	$65
Mini Tower Case w/200W PS	65
Big Tower Case w/200W PS	107
Mid Tower Case w/200W PS	99

VIDEOCARDS

MGP Card	$11
EGA Card	44
CGA CARD	28
VGA 800 x 600 256K	44
VGA 1024 x 768 256K Paradise	68
VGA 1024 x 768 512K	72
VGA 1024 x 768 1 MB	85
VGA Tseng Lab 1024x768 1 MB	108

MONITORS

12" Mono	$71
14" Mono	85
14" Mono VGA RE9502	116
14" Goldstar EGA	275
Relisys RE 9512	245
Relisys RE 9513	280
Relisys RE 9514	299
Super VGA .28 1024x768	286

RAM

4 MB-80ns SIMM	$170
1 MB-80ns Simm	44^{80}
256-80ns Simm	12^{50}
4i256-80ns	1^{35}
44256-80ns	4^{65}
4164-80ns	1^{39}
4464-80ns	1^{87}

CALL FOR CPU, MATH COPROCESSOR PRICE

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***Floppy Drives**	
Teac 1.2 MB FDD	$55
Teac 1.44 MB FDD	53
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Seagate ST-225 20 MB	$172
Seagate ST-251-1 40 MB	221
***IDE**	
Conner CP 3000 40 MB	$174
Conner CP 3104 100 MB	314
Conner CP 30104 120 MB	339
Conner CP 3204 200 MB	539
W.D. 40 MB	154
W.D. 80 MB	264
W.D. 200 MB	534
Seagate ST-157A	172
Seagate ST-1102A 89 MB	275
Seagate ST-1144A 130 MB	385
Seagate ST-1239A 210 MB	559
***ESDI**	
Maxtor 8760E 660 MB	$1499
ST-2106 94 MB	560
ST-1111E 90 MB	565
Maxtor 4170 170 MB	440

CONTROLLER CARDS

MFM 2 FDD/2 HDD 1:1	$36
IDE 2 FDD/2 HDD 1:1	14
RLL 2 FDD/2 HDD 1:1	56
ESDI 2 FDD/2 HDD 1:1 64K	128

MODEM CARDS

2400 Internal Modem	$56
2400 External	88
2400 MNP5 External	101
2400 Pocket Modem	83
9600 Fax/2400 Modem	121

KEYBOARD/MOUSE

101 Keyboard	$25
101 Click	$29
Keytronic Keyboard	38
Track Ball 101 K	64
Logitech Mouseman	66

MISCELLANEOUS

AT I/O Card (2S/1P/1G)	$12
MS DOS 3.3	38
MS DOS 4.01	46
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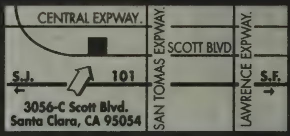

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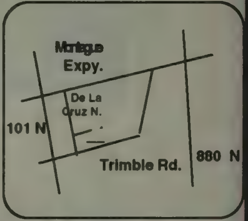

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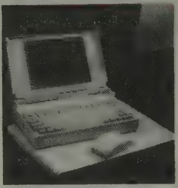

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Continued from page 175

creation and manipulation program. It has two special features that may make it useful for some individuals: good anti-aliasing of text, and tight integration to video capture and output boards. In addition, it has some features of a drawing program. Every element in a document retains its own characteristics, essentially creating an object-oriented environment.

Nine typefaces are provided with the program, although an accessory font package with forty-seven additional typefaces is available. There are no tools for drawing shapes aside from rectangles, but you can import PICT or TIFF files. Video Quill is too slow to be used as a real-time character generator, and offers no presentation features; no slide show or scrolling capabilities.

I had high hopes for Video Quill based on the advertising I'd seen for it and some of the reviews I'd read. Aside from its anti-aliasing (and that capability is available in other applications), it brings nothing new to the party and its reliance on proprietary fonts further limits its usefulness. Unless you only need to produce some still images with smoothed fonts for presentation, I'd look elsewhere for a replacement for your Chyron. (Data Translation, Inc., 100 Locke Dr., Marlboro, MA 01752. 508/481-3700)

QUICKDEX II

Published By: Casady & Greene
List Price: $60.00
Reviewed By: Matthew Leeds

All day long I'm on the telephone and all day I need to look up phone numbers. The best phonebook program I've used to keep track of them is QuickDEX.

For me the bottom line is speed. Of all the phonebook programs I've used, QuickDEX is far and away the fastest. As soon as I've selected it from the Apple menu (well before its window has appeared) I can start typing in my search text, hit return, and up pops the first hit. It's that fast. Its data file is text, and should it ever get trashed (hasn't happened yet, but you never know) I can recover it with a word processor or text editor like Vantage.

There are lots of other great features in the new version of QuickDEX, including the fact it's still fast. It now comes with an installer (no more Font/DA Mover), the auto-dialing now supports prefix and suffix dialing, phone credit card numbers can be secured, each card has a scroll bar and can hold 16K of text, all commands have keyboard equivalents, cards can be date/time stamped, and you can control the font and point size used in the deck. It's also System 7 compatible and 32-bit clean.

QuickDEX II still doesn't do much in the way of printing, but an improved PrintDEX II is in the works and may be done by the time you read this. (I'll review it in a later issue.) QuickDEX is great not only as a phonebook but also as a notebook for stuffing random information in; it can search for and find anything just by typing in a keyword or phrase, there is no need to build an index. It's fast enough to work without one. Remember, QuickDEX is fast. (Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 408/484-9228)

THE ORIENT MULTIMEDIA TRAVEL ENCYCLOPAEDIA CD-ROM

Published By: InterOptica Publishing
List Price: $299.00
Reviewed By: Matthew Leeds

The Orient is the first release in an eight-volume series of multimedia travel guides being produced by InterOptica Publishing. It's an excellent example of form over function, and highlights the dilemma producers of multimedia products find themselves in. Indexed text databases are boring but efficient, while full-scale multimedia databases are expensive to produce and difficult to design.

The tools used to produce the disc include MacroMind Director, Adobe Illustrator, PixelPaint Pro, and Swivel 3D. It contains over five hundred maps, three hundred color photographs, and a great deal of text, graphics, animations, and music. It's beautiful to look at, but ultimately frustrating to use.

The information presented on the disc includes data for each country on geography, visas, currency, customs, etiquette, history, politics, religion, holidays, transportation, recreation, and health. For the cities, there's additional information on communications, useful addresses, tourist assistance, banks and money changers, hotels, bars, nightclubs, museums and art galleries, restaurants, and shopping districts.

All of this is great fun to explore, but the depth of information is too limited. For example, in each city only about four hotels are listed, and they generally are the most expensive. This makes sense, as the likely users of this disc must be at the top end of the disposable income scale. In general a good guidebook and a travel agent would be a much better investment. (InterOptica Publishing Ltd., 1213–1218 Shui On Centre, 6–8 Harbour Rd., Hong Kong. 852/824-2868) ■

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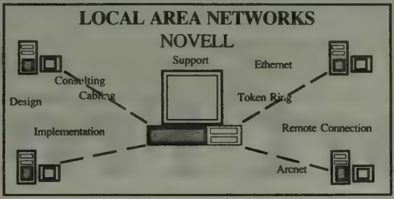

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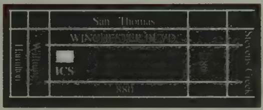

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Report From MacHack

Macintosh Madness In Michigan

BY DAVID MORGENSTERN

BMUG

This month I'll fill you in on the inside happenings of the leading Macintosh technical conference, MacHack. A grand time was had by all, amid the rumors, caffeine, and keyboards. But before we get to the news, I'm going to take this opportunity to vent a brief diatribe. Please don't phreak out!

The *Hackers Dictionary* (an electronically published dictionary of computer slang from MIT, Stanford, and Worcester Polytechnic Institute) gives the following definitions for *hacker:*

> *Hacker [originally, someone who makes furniture with an axe] n. 1. A person who enjoys learning the details of programming systems and how to stretch their capabilities, as opposed to most users, who prefer to learn only the minimum necessary. 2. One who programs enthusiastically, or who enjoys programming rather than just theorizing about programming. 3. A person capable of appreciating hack values. 4. A person who is good at programming quickly. Not everything a hacker produces is a hack. 5. An expert at a particular program, or one who frequently does work using it or on it; example: "A UNIX hacker." 6. A malicious or inquisitive meddler who tries to discover information by poking around. Hence "password hacker," "network hacker."*

Too often nowadays, hackers are described as a dangerous or subversive group of unethical hooligans. All the negative mass-media publicity of computer viruses has spun the hack and the hacker into the doghouse. Newcomers to the digital side of the street are frightened by the ominous reputation. It's a bad rap—they're the good guys and gals!

The name has also been adopted by persons that break phone company long distance codes, what we used to call *crackers.* These codehackers, phonehackers, or speedhackers (named after speed-dialing), are reinforcing a pejorative bent to the honored hack. Remember, if there were no "real" hackers, we wouldn't have any hardware or software toys.

Copyright © 1991 by David Morgenstern. All rights reserved worldwide. David Morgenstern is a Bay Area "MacNurturer" and BMUG member. David is DMORGENSTERN on MacNET, 72030, 1607 on CompuServe, and himself at (415)549-BMUG.

On the wall in the System 7 project office was a sign that read, "The bitterness of poor design remains long after the sweetness of making a deadline has passed."

MACHACKING COUGH

The sixth annual MacHack was held last June in Ann Arbor, Michigan. Some of the self-proclaimed best and brightest programmers take in the panels, papers, and clinics offered. There were even sessions on business and public relations. If the busy schedule wasn't enough, there was plenty of intriguing discussion and Mac-lore floating around between the all-night coding parties.

The conference took place with the backdrop of the Apple/IBM talks in Armonk, New York. Apple white-collars were pressed hard for details, but the infamous Bash Apple session was fairly tame. The moderator of that session traditionally carries a baseball bat—to protect the Apple Developer Technical Services representatives from the mad dog technoids! This time the Apple programmers came armed with Nerf crossbows, and plenty of foam-rubber ammo.

Some of the silicon braintrust were not happy with the proposed agreement. The prospect of IBM's RS/6000 RISC processor as the heart of future Macs did not make for smiling faces. They hoped that the CPUs would be chosen solely on technological merits. Academic hackers in attendance, supporting thousands of Macintosh users, did not particularly care for AIX, Big Blue's brand of UNIX, the current operating system for its RS/6000-based workstations. Kirk Loevner, Director of Apple's Developer Group, was hissed and booed when he said that business concerns were of equal importance to technology in the Apple/IBM talks.

The Holiday Inn nightclub, City Limits, featured special drinks for the conference.

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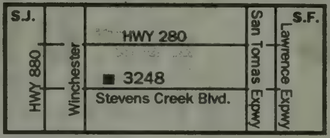

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Pink was a combination of pink lemonade and gin, with a lemon slice, which may be close to the mark with sweet, sour, and a bitter aftertaste. Dean Yu, one of the System 7 Blue Meanies had two drinks done in his honor. Dean's Init was an awful mix of vodka and gin, while NetBunny was a peach schnapps mess named for last year's award-winning Yu-thful hack.

MacHack is a combination of a fraternity reunion (90% guys) and mutual admiration society for silicon jocks. There's a shared sense of the digital worldview, and common programmer pastimes—sitting for hours coding at the computer, staying up all night nursing a piece of code, and talking deep shop.

A THOUSAND POINTERS OF BYTE!

The MacHack contest and award banquet conclude the week's festivities. Little programs brought to the conference, or written entirely there, are awarded acclaim and goofball prizes. Many are useful only to developers, adding "impossible" features to deeply buried Toolbox routines, while others will eventually find their place on our desktops. Many are cute, lovable, but often buggy curiosities.

For the first time a couple of Microsoft code-masters came to the conference. There's plenty of animosity in the small developer community to the software giant, so the universal brother/sisterhood of all programmers was put to the test. Everyone was pleased by the warm reception offered them.

They teamed up with some Apple people, and wrote a detente hack, AliasThis!, for the contest. Drop something on AliasThis!, and a System 7 alias appears automatically in your Apple Menu. The description said, "Forget backroom meetings in Armonk. What really counts is late-night coding in hotel rooms in Ann Arbor."

•Bully by Scott T. Boyd is helpful for people feeling the pinch of memory hungry applications. It's difficult to operate many applications under System 7 on a machine with only 2MB. Bully frees up needed memory by forcing the Finder (formerly known as MultiFinder), and using the freed-up RAM—sometimes an additional 500KB!

In the Application menu, the Finder is replaced by a pantomime Bully's Buddy application. You have to quit from all open applications before Bully will take you back to the Finder.

•There were plenty of silly hacks entered in the contest. The Grouch 2.5 is now a stand-alone application; there's also a little extension that causes Oscar to pop out of the Trash and sing when you throw something away. The application version became necessary from the numerous instances of little Mac-children throwing all Mommy and Daddy's files away to catch the act. Clarus-The Tail Patch puts an animated dogcow into the About-the-Finder window.

First prize went to VideoBeep, "guaranteed to annoy your co-workers." It replaces the system beep with a QuickTime movie. Start saving pennies for the jumbo hard drive to store all the video clips you'll want to play when QT is finally released.

• OkOkOK is a treacherous little extension that hits Enter for you if a modal dialog box has been on the screen for more than two seconds. Dave Falkenburg at Apple claimed he was too tired to give it a human interface, so there's no warning, or way to vary the timing. It's the perfect gift for optimists with good reflexes.

• Scribble 1.0d1 is the enhanced version of last year's FinderPict, which allowed users to paste pictures into Finder windows. This extension lets you paint in the windows, with a pencil, eraser, or paintbrush! Anything you draw stays, and if you close the window or restart, it will be there when you open it again. At the moment, Scribble is only in black and white, but soon (sometime in the coming decade) it will support color, copy, and paste. The authors, System 7 programmers, Chris Derossi and Darin Adler, claim not to have found any crashing bugs—in ten minutes of testing.

UPCOMING EVENTS:

September 12	Claris HyperCard 2.1, Delta Tao new graphics software.
September 19	Thunderware new product, MacVonk USA KeyPlan.
September 26	Guy Kawasaki *Selling the Dream,* Larry Salmon AbreV-8 device.
September 30	BMUG West in San Francisco's Exploratorium museum. Ladera Systems Networking and integration.
October 3	Letraset ColorStudio, Automated Printing Technology Multi-Ad Search.
October 10	Sun Microsystems Partner, CommonLink, Rad Technologies something good.
October 17	ProVue Panorama, Salient Diskdoubler.

• Your Expanding Infosphere radio show, Saturdays at noon, KALW-FM 91.7, has BMUG meeting announcements. Check it out!

> **The Holiday Inn nightclub, City Limits, featured special drinks for the conference. Pink was a combination of pink lemonade and gin, with a lemon slice, which may be close to the mark with sweet, sour, and a bitter aftertaste.**

WAR STORIES FROM THE SEVENTH FRONT

MacHack was also a rest-stop (and lovefest) for the System 7 (Blue) development team. They'd been running nonstop up to the release last May, including rough presentations at the Worldwide Developers Conference. This was an opportunity for them to get a well-deserved round of thanks, adulation, and credit from their peers for having created the best microcomputer environment around.

It was also the first time that the members possessing the inside stories had not been locked under nondisclosure. Here are a few of the revelations:

•The first proposed shipping date was for Halloween 1989! There were thoughts of tying the software with the release of the Mac IIfx, which hit the streets in April 1990. The team hated the idea of linking hardware and software releases. Their ordeal led them to comment, "CPUs are like trains, they keep going and make money for the company—just stay off the tracks!"

Members of the team placed a ship-it-on-time prayer plaque at the Heian Shrine in Kyoto, Japan. If the team had wished to cover all the bases, perhaps they should have also engaged an exorcist.

Reports of System 7-loaded machines

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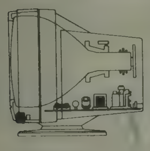
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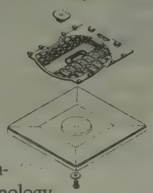
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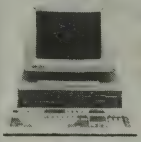

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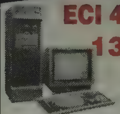

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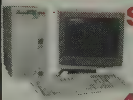

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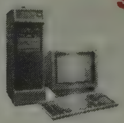

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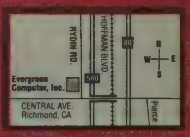

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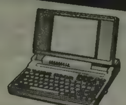

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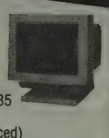

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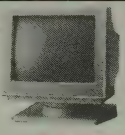

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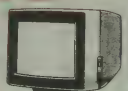

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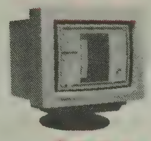

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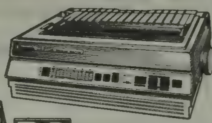

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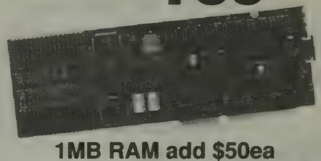

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EVERGREEN (510) 526-8667 FAX (510) 526-1447 suddenly brought to a crawl, as if their engines had just dropped on the highway, had only been heard of by the bug fixers. They were eager to see the inaction in the flesh. They asked Bay Area developers uncovering the anomaly to leave it "running," and give them a call. Seeing and debugging, is believing.

•The *Blue Meanies* were a select group of design arbiters and watchdogs. They determined the correctness of code during development. The young temporary programmers hired to patch pieces of code this summer were called the Eeny Meanies.

On the wall in the System 7 project office was a sign that read, "The bitterness of poor design remains long after the sweetness of making a deadline has passed." This is especially true of operating system software that will be used for years to come. Irritating bits of code become patch-coated pearls in software oysters.

•Everyone agreed that the System 7 youngsters did a bang-up job. Many of them might have a hard time getting a spot on the Microsoft New Technology (NT) team. NT is the operating system base on which future Windows versions will run. It was reported that the software engineers in the NT group have an average eight years professional programming experience. Entree to the team also requires having developmental involvement in three previous operating systems.

Thanks to BMUG attendees Raines Cohen, Stephen Howard, Tom Lippincott and Leonard Rosenthol for sharing the details.

UNDER AND OVER BYTES

The rumor miller's daughter was working overtime this month. The "news" that Apple would offer a ROM upgrade in October spread around the electronic services faster than a bad credit rating. Lamentably, the ROM replacement story surfaces every once in a while, and sends power-users salivating.

Ever since the release of System 7, Mac owners have been ROM conscious. Macintosh II models with 32-bit "clean" ROMs (IIci, IIfx, and IIsi) can now access up to 1GB of executable RAM. The LC has 32-bit clean ROMs, too, but is limited to 10MB. This is a combination of physical memory and virtual disk-based memory, since it's difficult (and profoundly expensive) to cram more than 128MB in the eight SIMM slots provided on the motherboard.

The other 68030-flavored models, and the original Mac II, have "dirty" ROMs that limit the capability to address more than 8MB physical and 13MB virtual memory. Petitions have been circulated asking that Apple provide clean ROMs for these machines. It wouldn't be too difficult a job, since the affected machines have a special slot for replacement ROMs.

Apple has been in the freezer on this plan. They are worried that old and new ROM chips would find their way into emulators or clones. Software patches look to be the current solution to work around the problems. Connectix's MODE32 software utility already lets the dirty machines take full advantage of System 7's memory management capabilities. It is a righteous hack, but software patches can only do so much before your computer's performance and reliability are compromised.

The intriguing side of the recent rumor is that the ROM upgrade will utilize Flash-memory, a type of nonvolatile read-write chip. Programs on floppy disks would install updated "ROM" code, just like system software. The downside of this feature is that viruses might be written to attack the Flash-memory "ROMs," instead of just applications and files on external disks.

BMUG rumor mavens claim that the information is correct, but the timeline is off—expect the upgrade in the spring. ■

Academic hackers supporting thousands of Macintosh users did not particularly care for AIX, Big Blue's brand of UNIX, the current operating system for its RS/6000-based workstations. Kirk Loevner, Director of Apple's Developer Group, was hissed and booed when he said that business concerns were of equal importance to technology in the Apple/IBM talks.

What Is BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information, and provide critical direction to users and developers in the computer community worldwide.

Like any growing organization, it is many different things to its eleven thousand international members. BMUG supports many Special Interest Groups (SIGs), an eight-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6–9 pm (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG Office, 2055 Center Street (a half block from the BART Station) is open to the public from 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with 700+ double-sided disks filled with the latest versions of public domain or shareware programs and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *PD ROM™ Version II*, our library and more on CD-ROM.

Our 16-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are as well as send mail to users everywhere! BMUG is a part of the international USENET network (ucbvax!garnet!bmug) or (user.name.bmug@garnet.berkeley.edu). With our 15-line capability you are now able to have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

To get some further information about BMUG please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or FAX (510)849-9026.

ADOS v2.0—Still Waiting After All These Years

But You Can Read Up On It While You're Waiting

BY MATTHEW LEEDS

AMIGA

I heard an interesting joke the other day.

A man walks into his Amiga dealer's store and says, "I'd like to upgrade to ADOS v2.0."

The dealer says, "No problem, would you like to pay for that today? I've still got a couple of A3000s in stock."

For most Amiga owners, the punchline isn't funny, or perhaps it's my delivery. Perhaps it's Commodore's delivery, or lack thereof, of upgrade kits for A500 and A2000 owners.

Perhaps even more interesting is that the delay now is due not to development snags or bugs in the operating system, but indecision by Commodore on how the upgrade kits will be marketed, when 2.0 ROMs will be installed in machines shipped to dealers, and what the pricing will be for the upgrade kits. Although Commodore has had over a year to consider these issues, no decisions were in place when the engineering group put the finishing touches on 2.0.

In the meantime, you can read all about 2.0 in two new books: *The AmigaWorld Official AmigaDOS 2 Companion* from IDG Books, and *The AmigaDOS Manual, 3rd Edition,* from Bantam Computer Books. Depending on your interest, each book provides a different spectrum of information about the latest version of the operating system.

THE AMIGADOS 2 COMPANION

The ADOS *Companion*, written by Bob Ryan, is a user's guide to ADOS 2.0. It can be used as either a replacement for the System Software manual or as a supplement to it, depending on whether Commodore edits the System Software manual before the release of the upgrade kits. (While the System Software manual is a great improvement over Commodore's earlier manuals, the first version had many errors).

About half the book focuses on Workbench, the Amiga's graphical user interface. As there are substantial changes in the 2.0 version, this attention is well worth the space devoted to it. Particular detail is devoted to the new Preferences editors and Commodities Exchange, as these are the key areas new users will want to use to customize their machine's user interface. In addition, the Workbench tools and utilities are covered at a level the average user will find comfortable.

The other half of the book covers the AmigaDOS commands and ARexx. Each of the ADOS commands is explained, along with its associated keywords and arguments. As much as I appreciate the flexibility built into ADOS, I use a Workbench utility instead of ADOS whenever possible, as I find it difficult to remember all of the command syntax required to take full advantage of it. I'd like to see someone publish a help function that explained in plain English how to use each command when you typed the command followed by HELP. Such a product once existed on the Amiga, but I haven't seen a 2.0 version, or heard of one in development.

The *Companion* also includes a good discussion of scripts. Scripts are text files of ADOS commands that can be used to automate tasks that would require multiple commands if entered into the Shell. They are similar to the start-up sequence that your Amiga executes every time you boot your system. Scripts are one of the real advantages of having a command line interface as part of the operating system.

The inclusion of ARexx in ADOS 2.0 provides even more power. ARexx is a programming language with the power to communicate with other programs running on your Amiga and to allow those programs to communicate with each other. This would, for example, let you take advantage of an image processing program's ability to alter a graphic file from within a desktop publishing program. The ADOS *Companion* covers the basics of ARexx, including its use of constants and variables, branching and looping, ARexx ports, and ARexx libraries.

THE BANTAM AMIGADOS MANUAL

The Bantam *AmigaDOS Manual* has a different audience in mind—the prospective developer. While it covers the AmigaDOS commands in detail, that section of the manual is essentially a duplicate of the information in the System Software manual supplied with ADOS 2.0. The Developer and Technical Reference sections are of most value to

Continued on page 244

A man walks into his Amiga dealer's store and says, "I'd like to upgrade to ADOS v2.0."

The dealer says, "No problem, would you like to pay for that today? I've still got a couple of A3000s in stock."

Copyright © 1991. All rights reserved. Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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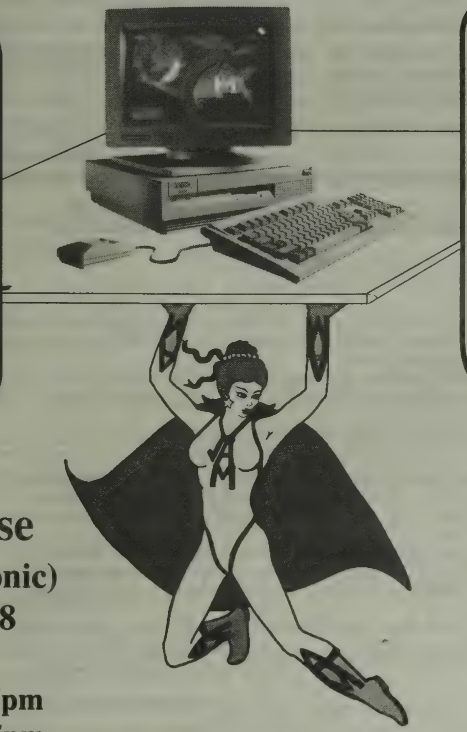

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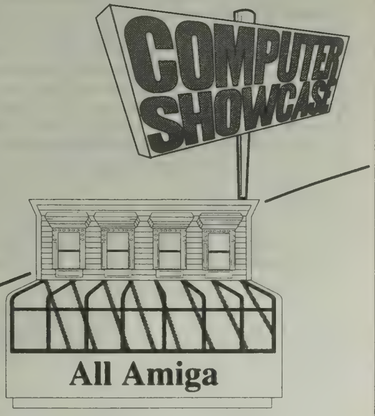

This ad was designed at Computer Showcase on the Amiga using Deluxe Paint III, Pro Page, Pro Draw and lots of imagination.
Artwork for Amiga Mama by Penelope Terry of Terra Linda, Calif. (415)472-1795

The Bay Area Center for the Amiga Arts

Continued from page 18

standard with all IBM PCs, or is at least offered at a reduced price.

WHAT MIGHT FALL THROUGH

The microcomputer industry is hurting right now, and might get blindsided if the economists' predictions of the end of the recession are wrong. If American and European businesses fare any worse this year than last, you can bet that they won't be trying to spend more on software or hardware than they have been recently. This is particularly true in Europe as major industries are storing cash like crazy to be prepared for unforeseen problems with next year's full-scale introduction of the European Community (EC). Many companies are slowing their growth and trying to work down their historically high debts.

Both the Borland/Ashton-Tate and Novell/Digital Research deals are subject to approval of the shareholders. In either case, the shareholders of either the purchaser or the purchasee can stop the deal if they think the price is too far out of line. Already, there is speculation on Wall Street that Borland is offering much too much for Ashton-Tate, particularly if it doesn't intend to keep all of the Ashton-Tate products on the market. Many analysts see Ashton-Tate as an aging, fragile giant that will not fit well with the young, fast-paced style of Borland.

Although the Novell/Digital Research deal seems more solid, some people are suggesting that $80 million is too much to pay unless Novell is sure that the Digital Research products will continue to sell as well as they have in the past. With Microsoft's MS-DOS v5 and the high-pressure hype that is going with it, sales of DR DOS have dropped to almost nothing, even though many continue to regard it as a better product. Of course, Novell management would argue that it will be easy to add gigantic value to DR DOS, but the shareholders have to be convinced. Digital Research management can probably successfully argue to its shareholders that there are few companies (other than IBM) who would make a similar offer for the company.

Both deals are stock swaps. These are notoriously hard to handle, since the prices of the companies continue to change as the shareholders mull over the issues. The American stock market has been particularly volatile since the Gulf War, and many normally optimistic analysts feel that it is at or near its peak, particularly for technology stocks. As company after company announces large layoffs and the general unemployment picture looks bleak, a 10% drop in the market seems well within reason. In that case, both of the acquisitions could easily be scotched, since the stock deals won't be worth nearly as much as they were when announced.

> **As company after company announces large layoffs and the general unemployment picture looks bleak, a 10% drop in the market seems well within reason. In that case, both of the acquisitions could easily be scotched, since the stock deals won't be worth nearly as much as they were when announced.**

BUYING VS. AGREEING

In the end, the IBM/Apple agreement may end up being more significant than either of the two proposed purchases, even if it doesn't generate much real software. That agreement has more power to scare Microsoft, since it will be impossible to tell what might come out of it. If the resulting object-oriented operating system comes to fruition in a reasonable amount of time (three years), Microsoft's long-term prospects may be lim-

Continued on page 203

Earnings Reports, Investor Confidence, Lift Stocks Higher

Buoyed mainly by investor confidence in the direction of the economy, as well as some positive earnings report surprises, the stock market posted a strong performance for the month ended August 2. During the month the Dow Jones Industrials closed up 71.56 points, or 2.44 percent, to close at 3006.26, and the Standard and Poor's 500 gained 3.7 percent.

But nowhere was the rise in the market more evident than in the Microtimes Stock Index, which gained 282.74 points, or 9.9 percent to close at 3132.83. Advancing issues in our index outnumbered declining issues by a margin of 10 to 1, with the stocks of only three companies posting losses.

The strongest performer of all was software concern Microsoft, which finished the month as the largest dollar-gainer in our index, up a staggering $11.50, or 18.62 percent, to close at $73.25.

The company reported that earnings for the quarter ended June 30 set a record for quarterly net income, surprising some analysts who had projected flatter earnings for the company. Microsoft reported that net income was $0.73 a share for the quarter, as compared to $0.43 a share for the same period a year ago. The year-long figures were just as rosy, with earnings-per-share for the fiscal year ended June 30 rising to $2.47 a share, up from $1.56 a share in the previous year.

Another software concern, Ashton-Tate, finished as the largest percentage-gainer for the month, with the company's stock finishing up $5.13, or 49.4 percent, to close at $15.50. During the month Ashton-Tate reached an agreement with Borland Intl. which called for Borland to buy Ashton in a stock swap. The deal, with a dollar value of $440 million, calls for $17.50 of Borland stock to be swapped for every outstanding share of Ashton-Tate.

Silicon Graphics also posted a strong month, closing up $9.75, or 34.82 percent, to end at $37.75. The rise came despite the fact that Silicon Graphics announced that fourth-quarter earnings had declined to $0.38 a share, down from $0.51 a share for the same time period a year ago. Citing the effects of a soon to be released low-end workstation on the company's market-share, some analysts have become bullish on the stock.

One company whose stock was unable to shake off the effects of a negative earnings report was MIPS. The CPU maker finished as the largest dollar and percentage-loser in our index, down $2.63, or 17.5 percent to close at $12.38. MIPS reported a second-quarter loss of $0.03 a share, a net decline of $0.19 from the same time period a year ago.

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									RATE	YIELD	HIGH	LOW
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OTC	Aldus		ALDC	37.75	39.25	1.50	3.97	21	0.00	0.00	59.88	20.25
OTC	Ashton-Tate	(H)	TATE	10.38	15.50	5.13	49.40	310	0.00	0.00	16.63	4.88
OTC	Autodesk		ACAD	47.00	52.00	5.00	10.64	22	0.48	0.92	62.25	32.00
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BRUCE BROWN
PC MAGAZINE JUNE 11, 1991

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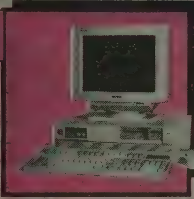

HQ 486SX
Intel 486/20 MHz SX CPU
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80 MB, 18ms Hard Drive
14" SVGA Monitor w/
16-bit SVGA card
$1749

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Intel 386/16MHz CPU
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Intel 386/25 MHz DX CPU
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HQ 286
Intel 286/12MHz CPU
Basic System Configuration
40 MB, 18ms Hard Drive
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16-bit VGA card
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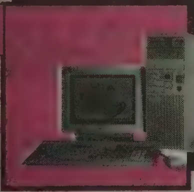
CACHE SERIES



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Basic System Configuration
120 MB, 18ms Hard Drive
64K SRAM Cache
14" SVGA Monitor w/
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Panasonic 1624 (wide carriage) **$359**
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Citizen GSX 140 **$279**
Citizen GSX 140 w/color **$349**

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Panasonic 1381 VGA Monitor **$409**
All Video Cards . . . . **CALL**
All Monitors . . . . **CALL**

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1:1 INTERLEAVE
2F/2H CONTROLLER
2 SERIAL
1 PARALLEL
1 GAME
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OPTIONS:
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HiQUALITY SYSTEMS INC.
HI-Q 486/33 EISA
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"HiQuality's computers are well constructed and inexpensive..."
PC MAGAZINE, April 16, 1991

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PC MAGAZINE, August 1990

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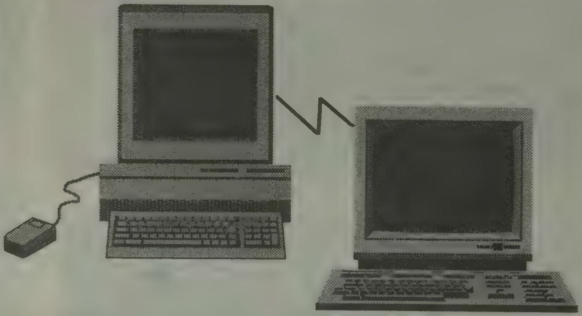

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TCP/IP-NFS

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TCP/IP for MAC	$490
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NFS for DOS	$495
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Cabling

1000' cable	$200
AMP BNC Male (10 pack)	$30
Terminator (thin)	$6
Terminator (thick)	$12
Barrel	$6
15' or 25' assembled cable	$20
Transceiver (vampire)	$130
Transceiver (BNC)	$135
Transceiver (10BaseT)	$145
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David Systems 12-port Hub/10T	$795
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3Com 8 bit Ethernet, coax	$195
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3Com 16 bit Ethernet, coax	$279
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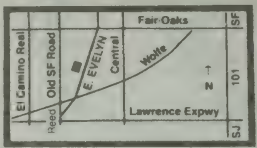
WD 16 bit Ethernet	$190
Asante Ethernet Card	$265
Xircom Pocket Adapter	$365
LANtastic Ethernet Starter Kit	$525
Intel Netport	$525
Hayes Ultra 96 Modem	$599



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Continued from page 198

ited to lower-power computers running various flavors of Windows and MS-DOS. With the proposed purchases, it will be easy to determine in the short run what will or won't come from them.

Microsoft is in the position of being favored only by customers at this point. After what Microsoft has done to IBM with the wholesale abandonment and even derision of OS/2, no company in the industry is likely to trust Microsoft for more than six months at a time. The IBM/Apple agreement gives companies who would normally trust stodgy IBM or progressive Apple a good base in which to place their trust—as long as they can actually produce something interesting. Even the customers won't favor Microsoft for too long if Novell comes out with a better operating system, fully compatible, at a great price, particularly if IBM is taking care of them on the high end with an OS/2 that can run Windows programs well.

Of course, IBM would not buy Apple any more than it would buy Microsoft. Such a deal could only happen as an agreement of unequal partners who have their own agendas and different views of the market. Purchases within one market segment, such as the Borland/Ashton-Tate deal, could only work as such; there is no way that those two companies could have a successful marketing agreement. Purchases to expand into favorable territories, such as the Novell/Digital Research deal, could be avoided by carefully worked out agreements, but customers often don't believe that the agreements will last. If either of the sales fall through, the company that would have been purchased will look silly and small and will have a hard time finding other buyers. ■

> **Even the customers won't favor Microsoft for too long if Novell comes out with a better operating system, fully compatible, at a great price, particularly if IBM is taking care of them on the high end with an OS/2 that can run Windows programs well.**

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 07/05/91	CLOSING PRICE 08/02/91	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	PRICE/ EARNINGS RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	52 WEEK HIGH	52 WEEK LOW
OTC	Lotus		LOTS	32.25	34.00	1.75	5.43	-189	0.00	0.00	36.50	12.50
OTC	Microsoft		MSFT	61.75	73.25	11.50	18.62	30	0.00	0.00	78.38	33.88
OTC	Novell	(H)	NOVL	48.50	58.75	10.25	21.13	33	0.00	0.00	59.75	17.25
OTC	Oracle		ORCL	8.13	9.25	1.13	13.85	-103	0.00	0.00	16.38	4.88
OTC	Software Publishing		SPCO	14.00	14.75	0.75	5.36	17	0.00	0.00	35.25	12.00
OTC	Symantec		SYMC	44.00	50.25	6.25	14.20	48	0.00	0.00	55.88	17.75
	HARDWARE											
OTC	Apple		AAPL	45.63	50.00	4.38	9.59	18	0.48	0.96	73.25	24.25
OTC	AST Research		ASTA	20.75	26.00	5.25	25.30	12	0.00	0.00	32.75	7.50
NYS	Commodore		CBU	12.38	14.50	2.13	17.17	9	0.00	0.00	21.63	4.50
NYS	Compaq		CPQ	33.25	36.38	3.13	9.40	8	0.00	0.00	74.25	29.88
NYS	Digital Equipment		DEC	59.63	69.50	9.88	16.56	-	0.00	0.00	83.00	45.50
OTC	Dell		DELL	26.13	30.13	4.00	15.31	20	0.00	0.00	30.63	8.25
NYS	Hewlett-Packard	(H)	HWP	50.75	56.50	5.75	11.33	17	0.48	0.85	56.63	24.88
NYS	IBM	(L)	IBM	98.63	100.38	1.75	1.77	14	4.84	4.82	139.75	95.63
NYS	Silicon Graphics		SGI	28.00	37.75	9.75	34.82	26	0.00	0.00	47.25	18.00
OTC	Sun Microsystems		SUNW	25.88	32.75	6.88	26.57	19	0.00	0.00	38.63	15.00
NYS	Xerox		XRX	53.88	55.25	1.38	2.55	10	3.00	5.43	60.13	29.00
NYS	Tandy		TAN	27.50	26.63	-0.88	-3.18	9	0.60	2.25	36.50	23.50
	CPUs											
NYS	Advanced Micro Devices		AMD	11.38	11.50	0.13	1.10	-19	0.00	0.00	14.25	3.63
OTC	Intel		INTC	42.88	49.25	6.38	14.87	13	0.00	0.00	59.25	28.00
NYS	LSI Logic		LSI	7.88	7.75	-0.13	-1.59	-9	0.00	0.00	12.50	5.13
OTC	MIPS		MIPS	15.00	12.38	-2.63	-17.50	-413	0.00	0.00	20.88	7.25
NYS	Motorola		MOT	65.50	66.13	0.63	0.95	20	0.76	1.15	76.75	45.75
	COMMUNICATIONS											
NYS	AT&T	(H)	T	38.88	39.88	1.00	2.57	15	1.32	3.31	40.38	29.00
NYS	BellSouth Corp.	(L)	BLS	47.63	48.13	0.50	1.05	15	2.76	5.74	56.25	46.25
OTC	MCI		MCIC	28.50	28.75	0.25	0.88	38	0.10	0.35	37.00	17.88
NYS	Northern Telecom	(H)	NT	36.63	38.38	1.75	4.78	20	0.32	0.83	39.88	22.13
NYS	Pacific Telesis		PAC	40.88	42.50	1.63	3.98	16	2.12	4.99	47.50	36.25

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DECLINES	3
UNCHANGED	1
NEW HIGHS	5
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SMALLEST DOLLAR GAINER	MIPS	$-2.63
LARGEST PERCENTAGE GAINER	Ashton-Tate	49.40%
SMALLEST PERCENTAGE GAINER	MIPS	-17.50%

CLOSING QUOTES:

	CLOSE 07/05/91	CLOSE 08/02/91	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	2850.09	3132.83	282.74	9.92
DOW JONES INDUSTRIAL AVERAGE	2932.47	3006.26	73.79	2.52
STANDARD & POOR'S 500 STOCK INDEX	374.08	387.18	13.10	3.50
N.Y.S.E. COMPOSITE	204.92	212.03	7.11	3.47
NASDAQ COMPOSITE	474.05	505.67	31.62	6.67

DATE	MICRO TIMES	DOW JONES
1/04/90	3386.69	2566.09
02/05/91	3586.83	2788.37
03/05/91	3531.96	2972.52
04/05/91	3298.59	2896.78
05/06/91	3209.84	2941.64
06/05/91	3178.90	3005.37
07/05/91	2850.09	2932.47
08/02/91	3132.83	3006.26

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Continued from page 26

Computer Of The Month

Zeos Notebook 386

For technical support there is an 800 number. In addition, there is a bulletin board from which you can get information, ask questions, and download software.

RESOURCES:

Stacker $149
Stac Electronics, Inc.
5593 Avenida Encinas
Carlsbad, CA 92008
1-800-522-7822

Zeos Notebook 386 $2295
Zeos, International, Inc.
530 5th Ave. NW
St. Paul, MN 55112
1-800-423-5891

Several trends are emerging in the notebook market. First, prices are down and, second, people prefer smaller notebooks to the larger laptops. A third trend is that there are a few, reasonably well known, mail order computer manufacturers that sell direct to the public. These companies typically offer excellent products, sold exclusively through their telephone sales organization. Service is often excellent, so buyers no longer need be afraid about what will happen if something goes wrong after they buy this mail order machine.

In the case of Zeos, you can reach them twenty-four hours a day through an 800 number. The tech support staff is well trained and courteous. They helped my friend, who was new to computers, set up her system. Afterwards, she called them many times and they were great, even with software problems unrelated to the Zeos. On one occasion, when service was required, the part arrived the next day and a technician from a local service organization promptly called to schedule installation of the part. Zeos has its service together.

This new notebook is almost as good as their service. It is a 7lb. wonder, powered by an 80386SX central processor running at 20MHz. It weighs 7lbs. with the NiCad battery. My main objection is the layout of the keyboard. For the most part, there is nothing wrong with the Zeos keyboard, it's just that Toshiba keyboards are turning out to be my favorites. It is mostly a matter of preference and I have grown used to Page Up, Page Down, Home, and End keys as separate keys rather than as functions that require you to press two keys—Function and another key—at the same time. But the feel is fine and Zeos boasts full-travel keys. Unfortunately, there is no port for connecting an external keyboard. I always prefer computers to have a port that allows me to attach my favorite keyboard when I am working in my primary location.

The VGA display is bright, clear, and of course, downward compatible. It measures nearly 10" diagonally. If you use the LCD black on white display, you can get thirty-two shades of gray. If you use an external monitor, you can get full color. An external monitor is easily attached to the 15-pin port on the back of the machine. To let the computer know that you are using an external monitor, you must use the included software. It is simple to toggle back and forth between the backlit display and an external monitor.

The machine includes a double-sided, high-density 3.5" floppy drive in addition to a hard disk. The basic machine comes with a 20MB hard disk. However, both 40MB ($245 extra) and 60MB ($495 extra) drives are available as options. The basic unit, which sells for $2295, also includes 1MB of RAM, expandable to either 3MB ($349 extra) or 5MB ($649 extra). For the economy-minded, by the way, they also have the same machine running at 16MHz starting at $1995.

The battery is designed to run the system for about two hours, when the built-in economy features are in use. Although some machines claim longer battery usage, few rarely exceed this time span. The supplied AC adapter will recharge the battery in about one hour. This means that you can use the machine in the field a lot. Some machines take up to four times longer to recharge than to discharge!

A Hayes-compatible 2400 baud modem, with MNP Class 5 data compression, is available for $219. The only thing that is not included is MS-DOS, for which they charge $119. If you are unsure about this machine, order it and try it for thirty days. If you are not satisfied, it can be returned for any or no reason for a full refund. ■

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W/128K CACHE

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- ▼ 100 MB IDE Hard Drive

Monitor Optional

$1950

486-25 MHz
W/128K CACHE

- ▼ 4 MB RAM Installed (Max 64 MB)
- ▼ Intel 486-25 MHz CPU & Math Co-processor
- ▼ 1.2 or 1.44 MB Floppy Drive
- ▼ 1:1 Interleave 2 HD/FD Controller
- ▼ AT Multi I/O (2S/1P/1G)
- ▼ Clock/Calendar with battery back-up
- ▼ Enhanced 101 Keyboard
- ▼ 100 MB IDE Hard Drive

Monitor Optional

$1750

386-33MHz
W/64 CACHE

- ▼ 0 Wait State on Motherboard
- ▼ Main Memory 1 MB
- ▼ Expandable to 2 MB/4 MB/8 MB
- ▼ Support Coprocessor Intel or Weitek
- ▼ AMI BIOS set up
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ HD Controller with 28MS 40 MB Hard Drive

$995

Monitor Options

Mono Monitor with Card	$95
VGA Monitor with 16 bit Card	320
Super VGA (1024x768) VGA Monitor with 16 bit Card	390

386-25MHz
(0 WAIT STATE)

- ▼ Main Memory 1 MB
- ▼ Expandable to 2 MB/4 MB/8 MB
- ▼ Support Coprocessor Intel or Weitek
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ 1:1 Interleave Controller with 28MS 40 MB Hard Drive

$900

Monitor Options

Mono Monitor with Card	$95
VGA Monitor with 16 bit Card	320
Super VGA (1024x768) VGA Monitor with 16 bit Card	390

386-16SX
(0 WAIT STATE)

- ▼ Main Memory 1 MB (EMS On Board)
- ▼ 8 Slots and Socket for Intel 80387 SX
- ▼ 220 W Approved Power Supply
- ▼ Real Time Clock with Battery Backup
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ 1:1 Interleave Hard Drive Controller with 40 MB Hard Drive

$685

Monitor Options

Mono Monitor with Card	$95
VGA Monitor with 16 bit Card	320
Super VGA (1024x768) VGA Monitor with 16 bit Card	390

286-12/16MHz
(0 WAIT STATE)

- ▼ Main Memory 1 MB (EMS On Board)
- ▼ 8 Slots and Socket for Intel 80387
- ▼ Foot Print LED AT Case
- ▼ Real Time Clock with Battery Backup
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ 1:1 Interleave Hard Drive Controller with 40 MB Hard Drive

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Monitor Options

Mono Monitor with Card	$95
VGA Monitor with 16 bit Card	320
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80287-10 For 286 System	$90
387 SX-16	135
387 DX-20	200
387 DX-25	210
387 DX-33	210

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Mono Graphic/Printer	25
Color Graphic/Printer	35
XT High Density Floppy Cont	35
XT Hard Disk Cont	49
EGA 600x800 Card	79
MFM 1:1 HD/FD Cont	69
IDE Dual HD/FD Cont	35
SCSI 1:1 HD/FD Cont	125
RLL 1:1 HD/FD Cont	80
Orchid Pro Designer w/1 MB 1024x768 Fastest VGA Card	269

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COLORADO 120 MB/250 MB	$249/325
EVEREX 80 MB/120 MB	229/269

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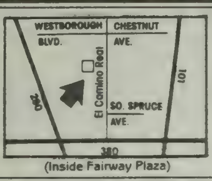

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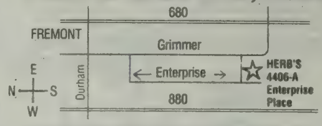

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Continued from page 40

a professional, Knowledge Seeker will let you explore the data rapidly and find the significant correlations with minimum grief. You can fish for various levels of significance—that is, whether you wish to be 80%, 95%, or 99% certain of what you have found. You can work with categorical data ("Male" or "Female," for instance, or ZIP codes or nationalities) or with continuous data (temperatures, revenue). You can ask the program to find significant clusterings for you automatically, or you can make it examine a specific question.

When you have imported your data (in Lotus, dBASE, or ASCII formats) into Knowledge Seeker, you are asked to choose a "dependent variable"—the field in terms of which everything else will be measured. For a medical research project, it might be blood pressure. For our demographics project, it was the ethnic mix of groups. When you have chosen the dependent variable, Knowledge Seeker will choose the other fields which have the most significant relationship with this dependent variable—with blood pressure, the most significant might be diet—and display a tree diagram that shows relationships in terms of this second variable. The tree can be pruned, expanded, edited, and reshaped as you see fit, to reveal the exact connections you are seeking. If you choose, the level of significance can be displayed. The results can be printed as a tree, or converted into rules for expert systems.

I found that, despite the documentation, I was finding significant new information within an hour of settling down to play with the program. And "play with" may be the right term: Knowledge Seeker is so easy to use that you can explore an idea on a whim. At any time you can tap one key ("i" for "interesting") and see all the significant splits in the data at a given point of the tree. You can group values, temporarily or permanently, to make experimental clusters. You can make the required significance level tighter, for greater certainty, or looser to catch less certain relationships. You can change the dependent variable and reexamine the database from a whole new angle. All of these you can do with menu choices, without programming.

The program is offered as an "executive" tool. We all know "executive" software is software for someone who is not competent to operate the real thing. Knowledge Seeker, fortunately, is a real product. It will find relevant information for you if you have no knowledge of statistics—that's the "executive" part—but you probably won't know what to do with it. If you *have* had some statistics experience, even years ago, you will recognize what the program is doing and benefit from it. Knowledge Seeker sifts your data for significance, something you just could not do without a computer. The remarkable thing is that people don't know about this product.

I found that these four products, working in four DESQview windows, made a complete data-entry, exploration, analysis, and presentation system. They complemented each other and exchanged data easily. With them I was able to do much more on my microcomputer than I could have on the mainframe that was offered to me at SF State. This means that statistical analysis on a desktop is practical, and affordable, right now. ■

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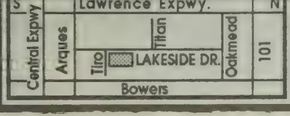

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three reputable, known outside individuals—persons whose backing would tend to lend credence to the technology, product, market, and company concept?

The venture must have the support of at least three respected individuals who are willing to attest to the company's efficacy and the feasibility of its proceeding to the seed stage. It is helpful at this point if the outside sources are also willing to invest their personal capital and time.

By the end of the concept stage, are the critical founders prepared to commit to a full-time effort during the seed stage?

This second rule for the seed stage tests whether those founders who might be considered critical have made a commitment to carrying out the seed plan on a full-time basis. After all, the founders are what the company is selling as a start-up. Their commitment is usually conditional on obtaining funding—i.e., if the funds for the seed stage arrive, the founders will leave whatever they're doing and begin to develop the plans for the company. However, if the founders are not personally committed, it is unlikely that investors will be either. In effect, seed stage investors are buying both a potential idea and a team.

Have the formal business plan and seed stage proved salable, such that an excess of investors have signed up to provide financing for the next stage (i.e., product development) at the sought-after price, resulting in an overcommitment of funds?

The principal proof of financeability is as simple as it was for the seed round: the company got the money.

Was the financing sought at the end of the seed stage in line with the objectives, milestones, and resources required to complete the product development stage?

Ideally, enough funds should be obtained to complete all phases of the product development stage, including beta testing. For large development projects, however, two or more funding rounds may be required merely to finish the product. The first nonseed round just covers the product specification, basic design, construction, and preliminary alpha testing. A second round would cover beta testing and the first few months of the market development stage.

When the company starts up (i.e., at the end of the seed stage), is its valuation in line with reality as compared to similar endeavors?

The most convincing plan is to present a comparison with other, similar ventures. Depending on the capital market and the firm's perceived market position, the valuation will be disproportionately higher or lower by factors of more than 3 (or about an order of magnitude between the highest and lowest valuations) for a comparable stage. The CEO or financial person should understand how other companies have done and use this information to set realistic valuation goals across the board.

Is the funding picture (in terms of availability of funds, state of the economy, and market and product segment) adequate to sustain the company's need for capital? *Test:* Is the products and/or market area still sufficiently unique and "in fashion," or has the once-"hot" area suddenly become "cold" because of an overabundance of suppliers or a long market-gestation time?

During the seed period, the funding picture can suddenly become unfavorable for the start-up through no fault of its own. Funds can dry up for many reasons, including investors' receiving requests for cash from companies they started earlier that are now doing poorly. For example, a semiconductor start-up may place heavy demands on cash just when the economy and spending take a downturn. ■

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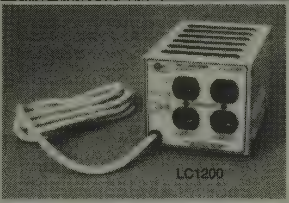

Tripp Lite Line Conditioners provide brownout protection by maintaining a steady voltage level during fluctuating voltages, providing a steady 117VAC output. Built-in spike, line noise and RFI/EMI filtering. Seven models including a 208/220/240VAC and a rack mount unit. UL listed. 2 year warranty.

- Voltage regulation from 87 to 140VAC
- Complies with ANSI-C84.1 specifications
- 600, 1200, 1800, 2000 and 2400 Watt models
- The LC1200, LC1800 and LC2400 models feature LED voltage display and ISOBAR® surge suppression

Order #	Price	Description	Weight
LS600	**99.95**	2 Outlets, 600 Watts	6 lbs.
LS604	**119.95**	4 Outlets, 600 Watts	6 lbs.
LC1200	**199.95**	4 Outlets, 1200 Watts	10 lbs.
LC1800	**229.95**	6 Outlets, 1800 Watts	14 lbs.
LC2000	**299.95**	7 Outlets, 2000 Watts, 208/220/240VAC, 50/60Hz	14 lbs.
LC2400	**299.95**	6 Outlets, 2400 Watts	16 lbs.
LCR2400	**349.95**	14 Outlets, 2400 Watts, Rack Mount	24 lbs.

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Order # **91MASTER** **134.95** ....1991 IC Master

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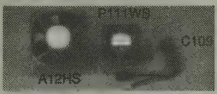
- 7" brush and scraper
- 7" fine point probe
- 7" slotted probe
- Rosin core solder
- Desoldering pump
- Soldering stand
- Utility components box
- Heavy-duty utility knife
- 5.25" bent needle nose pliers
- 4.5" diagonal cutting pliers
- 5.25" flat nose pliers
- 5.25" needle nose pliers
- Digital multimeter
- 6" adjustable wrench
- 5.5" stainless steel scissors
- 2 piece needle file (round and flat)
- Brush (to clean keyboard, monitor, etc.)
- 30 Watt soldering iron with long life tip
- 10 piece line color screwdriver set
  - Slotted: 1/8x3, 3/16x4, 3/16x6, 1/4x1 1/2, 1/4x4, 1/4x6
  - Phillips: 1/8x3 (#0), 3/16x3 (#1), 1/4x1 1/2 (#2), 1/4x4 (#3)
- 6 piece precision screwdriver set (1/32, 3/64, 5/64, 3/32, 1/8, 9/64)
- 8 piece hex key wrench set (fold type) (0.05, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32)

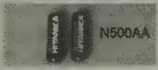
Order #	Price	Description	Weight
E8305	**119.95**	51 Piece Pro Tool Kit	12 lbs.

AC/DC ROTARY FANS



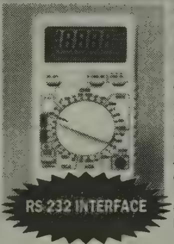
Order #	Price	Volt.	Dimens.	RPM	CFM	Weight
P111WS	**10.95**	115VAC	3.15"x1.65"	3000	30	1.18 lbs.
P111TS	**12.95**	115VAC	4.71"x1.50"	3000	105	1.28 lbs.
P113TS	**12.95**	115VAC	4.71"x1.50"	1700	55	1.26 lbs.
B12HS	**8.95**	12VDC	3.15"x1"	3200	35	4.3 oz.
A12HS	**10.95**	12VDC	4.71"x1"	2900	85	5.7 oz.
C109	**.99**	Fan Cord, 3 feet, 2 Cond.				1.3 oz.

NICAD BATTERIES



Order #	1-9	10+	Voltage	Current	Type
NRAAA	**1.95**	**1.55**	1.2V	180mA	AAA
N500AA	**1.95**	**1.55**	1.2V	500mA	AA
N1200C	**3.45**	**3.05**	1.2V	1.2 Amp	C
N1800C	**3.95**	**3.55**	1.2V	1.8 Amp	C
V5022	**9.95**	**8.95**	7.2V	100mA	216

4 1/2 DIGIT MULTITESTER



GENERAL CHARACTERISTICS:
Max. Display: 19999 counts with automatic polarity indication • **Max. Input Current of AC and DC:** 20A (max. of 15 minutes) • **Overrange Indication:** "OL" and "Bar graph flashing" figure on display • **Max. Common Mode Voltage:** 500VDC/AC RMS • **Reading Rate Time:** Approx. 1-2 readings per sec. • **Temp. for Guaranteed Accuracy:** 23°C ±5°C • **Temperature Ranges:** Operating 0°C to 40°C, 32°F to 104°F, Storage –10°C to 50°C, 14°F to 122°F • **Power Supply:** One 9V battery (Included) • **Size:** 3.4"W x 7.4"D x 1.3"H • **Unit Weight (Excluding carrying case):** 0.8 lbs. • **Accessories:** Operating manual, 9V battery, test leads, spare fuse, and carrying case. RS-232C Cable, Floppy Disk (Optional)

FUNCTION	RANGE	ACCURACY	RESOLUTION
DC VOLTAGE	200mV	±0.05% of rdg+3dgts	10µV
	2V		100µV
	20V		1mV
	200V		10mV
	1000V	±0.1% of rdg+5dgts	100mV
AC VOLTAGE	200mV	±0.5% of rdg+10dgts	10µV
	2V		100µV
	20V		1mV
	200V		10mV
	750V	±0.8% of rdg+10dgts	100mV
DC CURRENT	2mA	±0.3% of rdg+3dgts	100nA
	200mA	±0.5% of rdg+3dgts	10µA
	20A	±0.8% of rdg+5dgts	1mA
AC CURRENT	2mA	±0.8% of rdg+10dgts	100nA
	200mA	±1.0% of rdg+10dgts	10µA
	20A	±1.2% of rdg+15dgts	1mA
RESISTANCE	200Ω	±0.2% of rdg+5dgts	0.01Ω
	2KΩ	±0.15% of rdg+3dgts	0.1Ω
	20KΩ		1Ω
	200KΩ		10Ω
	2MΩ		100Ω
	20MΩ	±0.5% of rdg+5dgts	1KΩ
CAPACITANCE	2000pF	±2.0% of rdg+20dgts	0.1pF
	200nF		10pF
	20µF	±3.0% of rdg+30dgts	1nF
FREQUENCY	20KHz	±2.0% of rdg+10dgts	1Hz
	200KHz		10Hz

Order #	Price	Description	Weight
M4650CR	**109.95**	4 1/2 Digit LCD Multitester	1.50 lbs.
RS232C	**9.95**	RS-232 Interface (Cable and Floppy Disk)	3.5 oz.

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Continued from page 88

Despite the success of TOMUS, however, Carlyle found itself in trouble in the late 1980s, a casualty of changing markets. It was a single-product company; worse, its single product was built on a proprietary database and ran on proprietary 8088-based hardware. Created at a time when libraries customarily bought catalog, circulation, acquisition, and serials packages from different vendors and didn't expect them to work together, TOMUS started to show its age. Attempts to update the product and create new modules within the existing architecture proved abortive and costly.

At that point, investors started backing away. Technology Ventures, which had made a significant loan to Carlyle now found itself with limited possibilities of recovering its investment. However, since its loan had a full lien on the company we could look at the situation with different viewpoints. Wadia recalls, "It could have been prudent to say, 'Let's get whatever we can out of this.' The other option was to say, 'Can we make something out of this company?' In this case, the customer base was very strong, and they wanted us to keep the company going and support it."

So, he says, "We revamped the maintenance structure, which formed a base of revenues. Then we modified the current production to run on faster processors so that the customers could keep up with performance enhancements. We had to do containment of cash flow, containment of morale, and keep the customer base together. We took the company through a planned reorganization process in June 1989, and brought it out by December of that year."

Meanwhile, they adapted to changing market conditions. Wadia notes that as time went on, academic MIS departments, which tend to be fond of UNIX, C, Sun workstations, and open architecture, were becoming more and more involved in the seclection of library management packages. So Carlyle abandoned its proprietary-architecture strategy and began developing its modules in the UNIX environment on Sun workstations, using Ingres, a standard relational product, as its database engine.

The circulation module is now shipping, and the others are well on their way. Customers credibility is increasing, and new products are under development.

"This is what you have to do," says Wadia. "We'll get our capital back, and some more, and we are paying income back to the funds. It's a lot of hard work, but the company has a new spirit, and we are willing to support it all the way as long as we keep on making progress." (Carlyle Systems Inc., 2000 Alameda de las Pulgas, San Mateo, CA 94403.)

Case History: The Quick Start

Sometimes a successful idea doesn't have to be technologically complex—witness ChannelBind, a start-up funded by Xerox Technology Ventures. ChannelBind is based on one of those seemingly obvious ideas that nobody thought of before: a low-cost, hard-or-softcover bookbinding system that requires no electricity, heat, glue, or document preparation. A natural for the desktop publishing revolution, the product, in the words of president Tony Asselta, "puts the tuxedo on your document."

The idea originated in a workgroup at Xerox's facility in Rochester, NY. The company was spun out in January 1990 and is currently a wholly owned subsidiary of Xerox; it already enjoys impressive sales and is working toward becoming an independent company. "Everybody's working around the clock, and we have a sense of urgency," says Asselta, who was recruited as president in April of this year.

Funding from XTV and the connection with Xerox have allowed ChannelBind some unique advantages—for one thing, Xerox customers saw the prototype of the product while it was still in the lab and clamored for its development. Xerox's overseas branches—Rank Xerox, Fuji Xerox, and Xerox Canada—helped sell the product to their customers, and in the US, Kinko's copy centers became ChannelBind enthusiasts. Further, the connection offered valuable marketing connections—exhibiting in the Xerox booth at trade shows, for instance.

Marketing Vice President Tom Slechta was in the original workgroup at Rochester, and says that Xerox's decision to spin out ChannelBind as an independent company rather than keep it within the large corporate structure was invaluable to its rapid development—less bureaucracy and more focus on the individual product. And on the other hand, the connection is valuable: "I've been in other start-ups where you were spun out entirely, and it was sink or swim. You had to create your own entity, but here we were able to walk with a foot in both camps."

Having achieved such promising results early on, the company is now looking toward independence, developing its own dealer channel outside the Xerox organization: "While the product is complementary to Xerox's, it wouldn't get the same attention alongside a mid-volume copy duplicator that sells for fifty to one hundred times its price," says Slechta. "So we deliberately have not gone to the Xerox sales organization as a reseller. We've used them as a referral and lead-generating source, and as a way to gain exposure in the marketplace. The sales organization helps us get right to our endusers."

ChannelBind is now in the process of seeking outside venture capital, to expand its product line and develop its marketing infrastructure. "At some point we want to stand alone," says Asselta. "We still expect Xerox to be involved, but probably as a minority rather than a majority holder as we expand and get more venture capital." (ChannelBind, 716/427-4280.) ■

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Calendar Of Events

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September 1 Computer Show & Sale. Concord. MarketPro. Call: (415)388-8893.

September 3 Intermediate WordPerfect 5.1 Course. San Francisco. The Software Training Group. Call: (415)397-4158.

September 3 & 10 Using FileForce Class. San Francisco. Abacus, Inc. Call: (415)749-2481.

September 4–6 UNIX Open Solutions Exposition And Conference. San Jose. The Interface Group. Call: (617)449-6600.

September 5–6 HD World '91 Conference: An In-Depth Look At High-Definition Systems For Film, Video, And Computer Graphics. San Francisco. HD Review. Call: 1-800-635-5537.

September 6 Aldus Persuasion For PC Class. San Francisco. Informative Edge. Call: (415)392-5544.

September 6 Installing NetWare v2.2 For Consultants And Technicians Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

September 7 Building A PC From Scratch Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 7 Computer Show & Sale. San Rafael. MarketPro. Call: (415)388-8893.

September 7 MacroMind MediaMaker Seminar. San Jose. Masters Institute. Call: (408)441-1800.

SEPTEMBER 4–6

UNIX OPEN SOLUTIONS EXPOSITION & CONFERENCE

San Jose

The UNIX Open Solutions Exposition and Conference will focus on Open Systems desktop computing solutions for the corporate end-user. It seeks to demonstrate the capabilities of an "Open Systems Environment" at the desktop as well as throughout the corporation. Presentations will help managers on how to plan more efficiently for evolving systems and how to integrate updated applications into existing systems. Call: The Interface Group, (617)449-6600.

September 7–8 LANs: User Systems Administration, Level 2 Course. San Francisco. The Software Training Group. Call: (415)397-4158.

September 8 Computer Show & Sale. Emeryville. MarketPro. Call: (415)388-8893.

September 9–10 Intro To Data Communications Class. San Francisco. PC Etcetera. Call: (415)291-8585.

September 9–10 MS DOS For AutoCAD Course. Martinez. Martinez Adult Center. Call: (510)228-3631.

September 9–12 AutoCAD Level 1 Course. Martinez. Martinez Adult Center. Call: (510)228-3631.

September 9 & 16 Using MacroMind Director Class. San Francisco. Abacus, Inc. Call: (415)749-2481.

September 10 Desktop Publishing On WordPerfect 5.1: Intermediate Course. San Francisco. The Software Training Group. Call: (415)397-4158.

September 11 Evening Forum: "What Does Windows 3.0 Offer?" San Francisco. The Software Training Group. Call: (415)397-4158.

September 11 Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 11–12 AutoCAD For Managers Course. Martinez. Martinez Adult Center. Call: (510)228-3631.

September 11–13 Microsoft Windows For Support Engineers Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

September 11–13 Time Line 4.0 Seminar. San Francisco. Symantec Training Group. Call: (415)898-1919.

September 12 System 7 Class. San Francisco. Informative Edge. Call: (415)392-5544.

September 13 Macintosh Networks Class. San Francisco. Abacus, Inc. Call: (415)749-2481.

September 14 Computer Show & Sale. Cow Palace. Computer Swap. Call: 1-800-533-7220. BBS: 1-800-464-6408.

OCTOBER 15–18

TAPE #1

San Rafael

The Dominican College of San Rafael will host the first annual international symposium, TAPE #1. It will feature leaders and innovators in the fields of technology, asthetics, politics, education, and entertainment. Student registration fees are available. Call: Bonnie Sullivan, (415)485-3255.

September 14 Repair And Troubleshooting A PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 15 Computer Show. San Francisco. Ft. Mason Shows. Call: (916)725-0228.

September 16 AutoCAD For A New Career Course. Martinez. Martinez Adult Center. Call: (510)228-3631.

September 16 Excel For Windows Class. San Francisco. Informative Edge. Call: (415)392-5544.

September 16 MORE Seminar: Outlining And Presentation Software For The Macintosh. Santa Clara. Symantec Training Group. Call: (415)898-1919.

September 16 Multimate 4 Intro Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

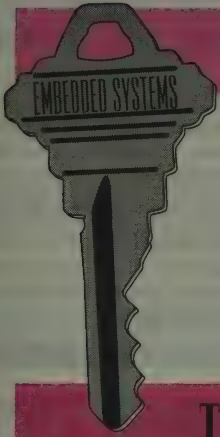
September 16 Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 16–17 Q&A 4.0 Seminar: Database/Word Processing Software. San Francisco. Symantec Training Group. Call: (415)898-1919.

September 18–19 FrameMaker For Macintosh Class. San Francisco. Informative Edge. Call: (415)392-5544.

September 19 Paradox Level One v3.5 Class. San Francisco. Abacus, Inc. Call: (415)749-

Continued



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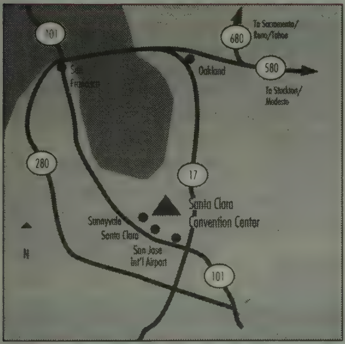

September 24 - 26, 1991

Santa Clara Convention Center
Santa Clara, California

TUESDAY, SEPTEMBER 24 2:00 PM - 8:30 PM
(Reception in exhibit hall 7:00 - 8:30)
(Exhibit hall will be closed during keynote presentation 6:00 - 7:00)

WEDNESDAY, SEPTEMBER 25 10:30 AM - 6:30 PM
THURSDAY, SEPTEMBER 26 10:30 AM - 6:30 PM

Attendance to these five events is included in your show registration

1 KEYNOTE ADDRESS

Redefining the Embedded Market
Andrew S. Rappaport
Tuesday, 6:00 pm - 7:00 pm

2 A PANEL SESSION AND OPEN DISCUSSION

Debugging with In-Circuit Emulators
Wednesday and Thursday, 6:30 pm - 7:30 pm

Leading vendors of in-circuit emulators will discuss deep-down debugging in this two part series of discussions. Come prepared with your toughest questions as you square off against the experts.

Panel leader session one - Bruce Bergman
Panel leader session two - Larry Mittag

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Show-only registration includes admission to trade show, keynote address, Oktoberfest, panel session and open discussion, Roaring 20's Casino Night and Circus Midway Party.

3 OKTOBERFEST

Tuesday, September 24
7:00 pm - 8:30 pm

OKTOBER FEST

It's never too early for Oktoberfest! Start the conference off right—unwind and network with your peers while sampling beers from around the world. You'll get the inside scoop on the latest embedded tools and utilities. Pose your toughest product questions to the vendors on the show floor while nibbling on fabulous foods and sipping on suds. Don't miss the opportunity!

4 ROARING 20'S CASINO NIGHT

Sponsored by Intel
Wednesday, September 25
7:30 pm - 11:00 pm

5 CIRCUS MIDWAY PARTY

Sponsored by AMD
Thursday, September 26
7:30 pm - 11:00 pm

For more information call: (415) 905-2354

Calendar Of Events continued

2481.

September 19 Troubleshooting A Novell Network Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

September 20 Harvard Graphics Class. San Francisco. Abacus, Inc. Call: (415)749-2481.

September 20 Wireless Networking And Novell NetWare Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

September 20 Word For Windows Productivity Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

September 20–21 Sources 1991: The Conferences For Asian Financing And Alliances. Santa Clara. AAMA. Call: (415)325-5499.

September 21 Building A PC From Scratch Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 22–25 Semi-Annual *CIO* Perspectives Executive Conference: IT And The Corporation—People, Productivity, And Profits. Monterey. *CIO* Magazine. Call: 1-800-366-0246.

September 23 Quattro Pro Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 23–27 X Window System Training. Santa Clara. ICS. Call: (617)621-0060. Email: info@ics.com.

September 24–26 The Embedded Systems Conference And Development Tools Exhibition. Santa Clara Convention Center. Miller Freeman, Inc. Call: (415)905-2354.

September 25 Harvard Graphics Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

September 27 FileMaker Pro Class. San Francisco. Informative Edge. Call: (415)392-5544.

September 28 Repair And Troubleshooting A PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

September 30 Intermediate Lotus 1-2-3 Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

September 30 Networking With Windows Class. San Francisco. PC Etcetera. Call: (415)291-8585.

September 30–October 3 AIX Expo. Santa Clara. Smith & Shows. Call: (415)964-2562.

September 30–October 3 Seybold West Conference. San Jose. Smith & Shows. Call: (415)457-5850.

OCTOBER

October 1 Harvard Graphics Level 1 Class. San Francisco. PC Etcetera. Call: (415)291-8585.

October 1–2 Project For Windows Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

October 1–4 Seybold Publishing Conference & Expo. San Jose. Smith & Shows. Call: (415)457-5850.

October 3 Automated Accounting Workshop. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)905-6900.

October 4 Agenda Database Class. San Fran-

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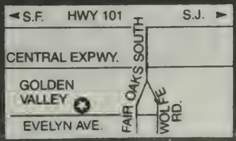

Mon-Fri: 9-6:30 Sat: 10-4 • Prices Subject to Change W/O Notice • Prices Reflect Cash Discount

Calendar Of Events continued

cisco. PC Etcetera. Call: (415)291-8585.

October 4 Installing NetWare v2.2 For Consultants And Technicians Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

October 5 Computer Show & Sale. Santa Clara County Fairgrounds. Computer Swap. Call: 1-800-533-7220. BBS: 1-800-464-6408.

October 5 MacroMind MediaMaker Seminar. San Jose. Masters Institute. Call: (408)441-1800.

October 6 Computer Show. San Francisco. Ft. Mason Shows. Call: (916)725-0228.

October 7–11 INTEROP '91: Computers And Communications Coming Together Conference. San Jose. Interop, Inc. Call: (415)941-3399.

October 8–9 InterNetworking With Novell NetWare Seminar. Palo Alto. Center for Advanced Professional Development. Call: (714)261-0240.

October 9 Intro To DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

October 9–11 Microsoft Windows For Support Engineers Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

October 9–11 Time Line 4.0 Seminar. San Francisco. Symantec Training Group. Call: (415)898-1919.

October 10 Automating Your Business Accounting System On The Macintosh Workshop. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)905-6900.

October 10 Networking With Windows Class. San Francisco. PC Etcetera. Call: (415)291-8585.

October 11 PC Hardware: Problems Prevention And Troubleshooting Class. San Francisco. Productivity Point International. Call: (415)243-0100.

October 11 System 7 Class. San Francisco. Informative Edge. Call: (415)392-5544.

October 12 Computer Show & Sale. Cow Palace. Computer Swap. Call: 1-800-533-7220. BBS: 1-800-464-6408.

October 12 Repair And Troubleshooting A PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 14–15 FrameMaker For Macintosh Class. San Francisco. Informative Edge. Call: (415)392-5544.

October 15 Microsoft Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

October 15 Real Estate Management With Platinum Series Software Seminar. San Francisco. Howard M. Haberman Associates, Inc. Call: Howard M. Haberman, (415)641-0850.

October 15–18 TAPE 1: An International Symposium On Technology, Aesthetics, Politics, Education, And Entertainment. San Rafael. Dominican College of San Rafael. Call: (415)485-3255.

October 16 Applying Quattro Pro Class. San Francisco. PC Etcetera. Call: (415)291-8585.

October 16 Word For Windows Productivity Class. Santa Clara. Productivity Point Inter-

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1542B kit SCSI	285
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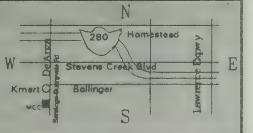

Calendar Of Events continued

national. Call: (408)287-8827.

October 17 Accounting Systems Seminar. Oakland. David A. Simon, CPA. Call: (510)893-5753.

October 17 Harvard Graphics Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

October 17 How To Successfully Automate Your Accounting System Seminar. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)905-6900.

October 18 Wireless Networking And Novell NetWare Seminar. Oakland. Information Data Networks. Call: 1-800-348-5855.

October 19 Building A PC From Scratch Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 22 Novell For The End-User Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

October 22 Real Estate Management With Platinum Series Software Seminar. San Jose. Howard M. Haberman Associates, Inc. Call: Howard M. Haberman, (415)641-0850.

October 23 Intro To LANs Class. San Francisco. PC Etcetera. Call: (415)291-8585.

October 24 Automating Your Business Accounting System Seminar. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)905-6900.

October 24 WordPerfect For The Legal Profession Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

October 24–25 Aldus PageMaker For PC Class. San Francisco. Informative Edge. Call: (415)392-5544.

October 24–25 Intro To Data Communications Class. San Francisco. PC Etcetera. Call: (415)291-8585.

October 26 Repair And Troubleshooting A PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

October 28 Quattro Pro Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

October 29 Multimate 4 Intro Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

October 31 Object Vision Level 1 Class. San Francisco. PC Etcetera. Call: (415)291-8585.

October 31 Word For Windows Desktop Publishing Class. Santa Clara. Productivity Point International. Call: (408)287-8827.

NOVEMBER

November 2 MacroMind MediaMaker Seminar. San Jose. Masters Institute. Call: (408)441-1800.

November 4–5 Aldus PageMaker For PC Class. San Francisco. Informative Edge. Call: (415)392-5544.

November 6 Excel For Windows Class. San Francisco. Informative Edge. Call: (415)392-5544.

November 6–7 Fourth Annual Microprocessor Forum. San Francisco. Call: 1-800-549-4342.

November 10 Computer Show. San Fran-

Continued on page 226

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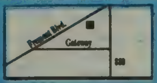

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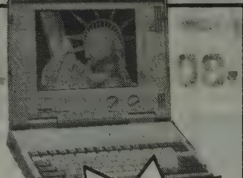

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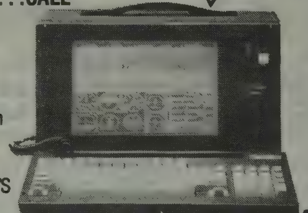

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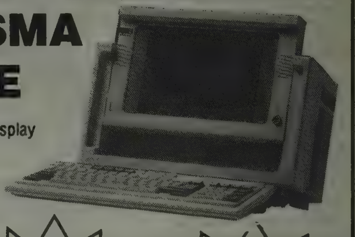

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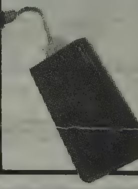

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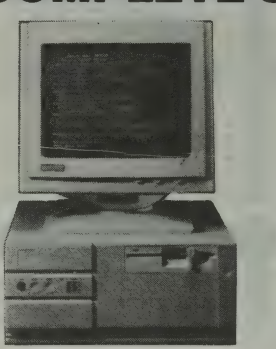

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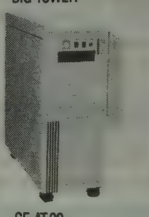

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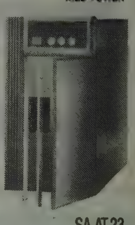

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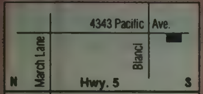

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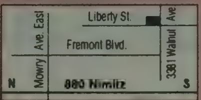

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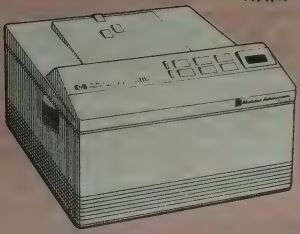

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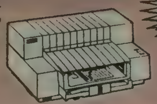

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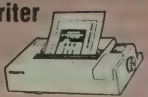

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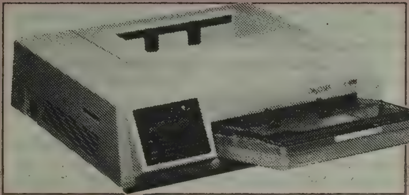

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Hot City. (408)848-6681. 8-N-1, 300–19,200. Amiga/IBM/Apple/Atari/Mac, multiline, 1.5GB UUCP-network, games. [Exp. #88.]

LOCALINK On Line. (408)244-8556, 244-8557. 8-N-1, 24 hrs., 300/1200/2400/9600. Get your business data online for public shopping/buying. Customized Business & Personal email/libraries/fax services. Sysop: Mark Sullivan. [Exp. #87.]

Lynn-Western Newswires. (408)778-5994 & 778-9656. 8-N-1, 24 hrs., 1200/2400. FidoNet 1:143/304. Professional information on technology, management, and worldwide investment news. Stock Market data online. [Exp. #88.]

Magic Kingdom. (408)245-3961, 253-2426. 24 hrs., 300/1200. Multiline chat, email. San Jose and Sunnyvale. Voice: (408)947-6178. Sysop: Mike Hammer. [Exp. #86.]

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Starnet Connections. (408)949-3133. 8-N-1, 24 hrs., 300/1200/2400/9600. Los Altos. Email, UseNet, UNIX, and more. Sysop: Richard Mahn. [Exp. #87.]

SUBBS. (408)765-1695. 300–9600 V.32. Free, public, upload, download, Intel sponsored. Sysop: Mark Elston. [Exp. #87.]

Top Gun. (408)972-1548. 300/1200/2400. FidoNet 1:143/69, MailNet 20:257/0, O{ECS 90:8009/69. Instant access. Sysop: Mike West [Exp. #88.]

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415

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AC Co-op BBS. (415)523-1268. 8-N-1, 2400. Public domain/shareware, msg. base, registration. Sysop: Doyle Dewberry. [Exp. #86.]

AIDS Info BBS. (415)626-1246. 8-N-1, 24 hrs., 1200/2400. 25Mb dBASE with index, keyword search, online help instructions, no chat. Topics on AIDS including read/write discussions, articles, stats, resource contacts, and private email between users. Text only. Sysop: Ben Gardiner. [Exp. #87.]

Amiga Users Of Marin BBS. (415)485-5895. 24 hrs., 1200/2400. Amiga topics and file transfers, plus political/environmental discussion. Sysop: Mike Dunne. [Exp. #88.]

Anatomically Correct BBS. (415)856-8425. 2400. Free, adults only, unique "chat." Sysop: Howeird. [Exp. #86.]

& the Temple of the Screaming Electron. (415)935-5845. A safe haven for visionaries and paranoids. 100 megs. NIRVANAnet. Sysop: Jeff Hunter. [Exp. #87.]

Art/Online. (415)255-7045. 8-N-1, 1200/2400/9600. Fine Art Forum, local and international email. Sysop: Jim Raridan. [Exp. #88.]

BayTalk BBS. (415)864-6430. 8-N-1, 24 hrs., 300/1200. The number one electronic source for text of legislation concerning people with disabilities and catalogs of products for people with visual impairments. [Exp. #87.]

BBS of San Francisco Apple Core. (415)563-8652. 24 hrs., 2400. Lots of fun, supports Apple II and GS computers. [Exp. #87.]

The Blue Dragon BBS. (415)965-1465. 24 hrs., 300/1200/2400 V.42bis. IBM/Mac/MIDI/D&D/doors/SIGs/SCUBA. Running WildCat! Sysop: Jeffery Hargiss. [Exp. #87.]

Blue Smoke BBS. (415)455-5587. 300/1200/2400. Adult SIGs, GIFs, program files, online games. Sysop: Timber Wolf. [Exp. #86.]

Boot to the Head BBS. (415)484-1999. 8-N-1, 1200/2400. Pleasanton. Multiplayer games and fantasy sports. Sysop: Bill Massey. [Exp. #86.]

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Compu-Ace BBS. (415)794-4029. 24 hrs., 300–38,400 V.32, V.42, V.42bis, and MNP1–5. Games, files, messaging, Pascal Programmers' Forum, & more. Sysop: Scott A. Mercer. [Exp. #88.]

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Fantasy Network—North Bay. (415)928-4781, 573-1063. 300/1200/2400. D&D Style game, multiuser, interactive. Voice: (415)365-2998. [Exp. #88.]

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HTG/Outreach BBS. (415)572-9594. 8-N-1, 24 hrs., 300/1200/2400. Gay/Lesbian/Bisexual/Transgender, security clearance info, calendar, Electronic GGBA Business Directory. Sysop: Sagittarius. [Exp. #86.]

IBBS West. (415)564-9998. 8-N-1, 24 hrs., 300/1200/2400/9600. IBM PC and compatibles, MNP V.32, 2 lines, email, San Francisco. Sysop: [Exp. #86.]

InfoGate BBS. (415)967-2356. 300/1200/2400. FidoNet/RBBS-Net Echomail, files, games, programming topics. Sysop: Ken Thomaston. [Exp. #87.]

Interactions BBS. (415)832-0560. 300/1200/2400. 200MB library, adult, 12-line social chat. Sysop: J. Berg & C. Watson. [Exp. #88.]

J & Ms Funhouse. (415)528-2223. 8-N-1, 300/1200/2400. Atari, Mac, GIFs, sounds, online games, and other. Sysop: Doc. J

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You can update or renew your listings at any time. If yours is missing, send us a new one! Send your listing information to: US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. Faxes are welcome at (510)934-2417 or (213)467-5486.

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PC Clubhouse User Group BBS. 8-N-1, 300/1200/2400. Castro Valley, (415)581-8529. San Leandro, (415)357-9577. [Exp. #87.]

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510

Amiga Addicts Anonymous (Triple A). (510)222-9416. 1200–14,400 V.42. Technical discussions, Skyline BBS. Berkeley. Sysop: Randy Spencer. [Exp. #88.]

Match-Makers Online. (510)687-EBBS. 8-N-1, 300/1200/2400/9600. 350MB and 650MB of CD-ROM shareware. Sysop: MSquare. [Exp. #91.]

PC Clubhouse User Group BBS. (510)581-8529, Castro Valley, (510)357-9577, San Leandro. 8-N-1, 300/1200/2400. [Exp. #88.]

Resume & Jobs/Careers Online. (510)687-3227. 8-N-1, 300/1200/2400/9600. Email for business owners. Upload your resume for employers to review. DOS, multiuser, DESQview. Sysop: Max. [Exp. #88.]

Satyr. (510)827-3894. 8-N-1, 2400. East Bay Gay/Bi Males. Four lines, private chat. Co-Sysop: Rob Wiles. [Exp. #88.]

707

The Darkside of the Moon BBS. (707)451-3323. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Multiline, email, 670MB IBM library, adult area, Professional Technology oriented. Sysop: Stephen Cannon. [Exp. #86.]

Infoserve Connections. (707)773-1517. 8-N-1, 24 hrs., 2400. UUCP/Usenet/email for DOS, Mac, and 386/UNIX. Sysop: B. Oesterreich. [Exp. #88.]

The Programmer's Hut. (707)795-1721. 24 hrs., 1200/2400. Oriented towards programming, source code, libraries, etc. Sysop: Ren Just. [Exp. #87.]

The UNIX Connection. (707)792-0420. 24 hrs., 1200/2400. UNIX oriented, but files for DOS, Mac, Amiga. 300+MB storage. Sysop: Ren Just. [Exp. #87.]

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Computer Show Hotline. 1-800-464-6408. 8-N-1, 1200/2400. Latest Computer Show info. Complete list of dates, times, locations, and directions. [Exp. #86.]

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Pacific Exchange (Sacramento) News. (916)965-0301. 11,000+ files, online restaurants & recipes. [Exp. #88.]

PROFESSIONAL ASSOCIATIONS

American Association for Artificial Intelligence (AAAI). Call: Rick Skalsky, (415)328-3123. [Exp. #91.]

Association for Women in Computing. Meetings: 1st Wed., 5:30 pm, San Francisco Marriott. Call: (415)979-8450. [Exp. #89.]

The Association for Worldwide Software Support Management. Meetings: 2nd Tues., Milpitas Sheraton. Call: Mikael Blaisdell, (415)865-1323. [Exp. #90.]

Computer Professionals for Social Responsibility. Meetings: 2nd Wed., 7:30 pm, UC Berkeley, Evans Hall, room 608-7. Call: Judy Stern, (510)643-7499. [Exp. #90.]

Data Processing Management Association. Call: (415)978-0868. [Exp. #89.]

Independent Computer Consultants Association, Silicon Valley Chapter. Meetings: 4th Thurs., 6:00 pm. Meetings are open to all. Call: ICCA, (408)492-8888. [Exp. #91.]

Independent Computer Consultants Association. Meetings: 2nd Wed., 6:00 pm. Meetings are open to non-members and members. Call: ICCA, (415)441-2948. [Exp. #90.]

North Bay Systems Professionals. Meetings: 3rd Wed., 6:15 pm, San Rafael. Call: Harry Chapman, (415)291-0174. [Exp. #87.]

PROFESSIONAL ASSOCIATIONS

Society for Technical Communication, Berkeley Chapter. Meetings: 2nd Wed., 6:00 pm, Yenching Restaurant, 2017 Shattuck Ave., Berkeley. Call: Rich Julius, (510)837-0397. [Exp #90.]

Society for Technical Communications, East Bay Chapter. Meetings: 1st Thurs. Call: Corinne Stefanick, (510)769-8931. [Exp. #88.]

Society for Technical Communications, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)985-7121. [Exp. #88.]

Society for Technical Communication, Silicon Valley Chapter. Meetings: 4th Thurs. Call: September Jenner, (408)971-2336. [Exp. #88.]

Software Entrepreneurs' Forum. Call: Barbara Cass, (415)854-7219. [Exp. #91.]

United Sysops Association. Meetings: 2nd Wed, 7:00 pm, Coco's, 1035 S. Mary Ave., Sunnyvale. Assoc. for system operators and BBS users. Call: Bill Strouse, (408)453-3321. [Exp. #88.]

Women's Computer Society. Meetings: Last Tues. Call: Tanya Halepota, (415)949-3936. [Exp. #88.]

Writer's Online Association of Technical Communicators. Meetings: Weekly, Berkeley. Call: Cynthia Kolnick, (510)673-5819. [Exp. #88.]

USER GROUPS

AMIGA

AAA (Amiga Addicts Anonymous). Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave. Classes, BBS, pub. dom. disks, info line. Call: (510)935-0829. [Exp. #88.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)826-6053. [Exp. #88.]

ALF—Amiga Learners Forum. Meetings: 3rd Sun., 6:00 pm, Cupertino Library. Beginners group. Call: (408)262-9334. [Exp. #86.]

AUM—Amiga Users of Marin. Meetings: 3rd Wed., 7:30 pm, rm. 190, Science Center, College of Marin. Call: Bob, (415)924-5384. AUMBBS: (415)485-5895. [Exp. #91.]

AWEST Amiga Users. Meetings: 1st Wed., 7:00 pm, Computer Showcase, 2739 Geary, S.F. Call: (415)584-8406. [Exp. #91.]

FAUG—First Amiga User's Group. Meetings: 1st Tues., 7:00 pm, Palo Alto Hyatt. Call: Mike Fisher, (415)855-9426, BBS (415)595-2679. [Exp. #90.]

APL

APL Bay Area User Group. Meetings: 2nd Mon., 7:00 pm. Call: Tibor Horvath, (415)283-5611. [Exp. #90.]

APPLE

San Francisco Apple Core. Meetings: 3rd Tues., 7:00 pm, SF State University, Hensill Hall, Rm. 205. An Apple II user group. BBSes, newsletter, demos, mentoring, swaps, DTP and telecom sub groups. Call: (415)771-5830. [Exp. #88.]

APRICOT

Apricot User Group, East Bay Chapter. New members welcome. Call: Ron, (510)828-9643. [Exp. #87.]

AT&T UNIX

AT&T Computer User Group-North Bay. Meetings: 1st Wed., new user education, 6:00 pm, program, 7:00 pm, San Francisco AT&T Bldg., 50 Fremont St. Call: Joe Mahoney, (415)584-6510; BBS (415)829-6027. [Exp. #90.]

AT&T Computer User Group-South Bay. Meetings: 3rd Wed., new user education, 6:00 pm, program, 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call: Joe Lipsig, (408)733-6522; BBS (408)946-7734. [Exp. #90.]

AT&T Computer Users Group, San Francisco. Meetings: 1st Wed., 7:00 pm, 50 Fremont St., 40th Fl. Call: (415)885-6631. [Exp. #91.]

AT&T Computer Users Group, Sunnyvale. Meetings: 2nd Wed., 7:00 pm. Refreshments, technical support, and informal discussions. Call: Jim Lansing, (415)885-6631. [Exp. #90.]

AT&T Computer Users Group, Sunnyvale—DOS Group. Meetings: 3rd Wed., 6:00 pm, 1090 E. Duane Ave., off Lawrence Expwy. Call: (415)885-6631. [Exp. #91.]

AT&T Computer Users Group, Sunnyvale—UNIX Group. Meetings: 4th Wed., 7:00 pm, 1090 E. Duane Ave., off Lawrence Expwy. Call: (415)885-6631. [Exp. #91.]

AT&T UNIX Computer User Group-South Bay. Meetings: 4th Wed., new user education, 6:30 pm, program, 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call: Thad Floryan, (408)985-7100; USENET, thad@cup.portal.com. [Exp. #90.]

ATARI

ABACUS (Atari Bay Area Users Society). Meetings: 1st Sat. Call: (415)469-7924. [Exp. #88.]

Bay Area Atari Users Group (BAAUG). Meetings: 1st Mon., 7:30 pm, Agnews Hospital Auditorium, Palm Rd. and Circle Dr., San Jose. Call: Joe Fischer, (408)988-3065. [Exp. #86.]

Santa Clara County Atari Users Group. Meetings: 2nd Wed., 7:00 pm, San Jose Computer Showroom, 1278 Alma Court. Formerly South County Atari Users Group. Call: Ron Reade, (408)225-7162, BBS (408)848-6032. [Exp. #88.]

CAD/CAM

AutoCAD DCA Engineering Software Users Group. Meetings: 3rd Wed. Call for location. Call: Mike Foley, (415)734-0707. [Exp. #86.]

Marin ACAD User Group. Meetings: 1st. Thurs. Call: Gigi Bollinger-Himes, (415)491-4722. [Exp. #86.]

S.F. AutoCAD User Group. Meetings: 1st Mon. Call: Mark Williamson (415)383-4060. [Exp. #89.]

SF Bay Area C.A.S.E. Users Group. Meetings: Once per quarter. Call: David Plotkin, (415)842-6706. [Exp. #86.]

Textile Computer Users Group—TCUG. Meetings: Bimonthly, 1st Sun., 10:00–noon. Bedford Hotel, San Francisco. Call: (415)284-1635. [Exp. #86.]

COMMODORE

Commodore Hayward User Group. Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)793-2514. [Exp. #87.]

CWEST Commodore 64/128. Meetings: 3rd. Wed., 7:00 pm, Fort Mason. For info: 1564 Waller #B, San Francisco, 94117. Call: (415)626-9946. BBS, (415)626-9946. [Exp. #87.]

dBASE

Silicon Valley Computer Society X-Base Language Group/dBASE SIG. Meetings: 1st Tues., 7:00 pm, Birchwood Systems, 2001 Gateway Pl., Suite 480 W., San Jose. Call: Fletcher Johnson (408)283-1333 (days & early evenings). [Exp. #90.]

Silicon Valley Computer Society X-Base Language Group/FoxPro SIG. Meetings: 2nd Thurs. 7:00 pm, Birchwood Systems, 2001 Gateway Pl., Suite 480 W., San Jose. Call: Fletcher Johnson (408)283-1333 (days & early evenings). [Exp. #90.]

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2 MB On Board,
Exp. 8 MB
$1545

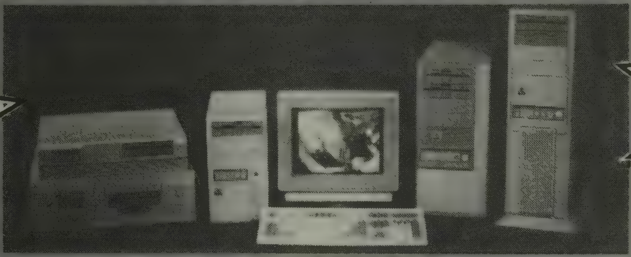
386-25 MHz
120 MB
2 MB On Board,
Exp. 8 MB
$1425

386-SX 20 MHz
80 MB
1 MB On Board,
Exp. 8 MB
$1195

386-SX 16 MHz
80 MB
1 MB On Board,
Exp. 8 MB
$1175

FREE DR. DOS SOFTWARE TO FIRST 50 CUSTOMERS!

SX 20 MHz
NOTEBOOK
Computer
2MB memory, 20MB HDD,
VGA LCD Display
only 6.5 lbs.
$2075



AAmazing
1024x768 Super VGA
14" 0.28mm Monitor
256K VGA Card
$375

LOWEST PRICE
ORCHID PRO-DESIGNER II/IIS-1 MB . . . . . . w/SYSTEM PURCHASE

MOTHERBOARDS

With CPU, OK

486-33 MHz, EISA, 256K Cache	Call
486-33 MHz, ISA, 64/128/256 Cache	Call
486-25 MHz, ISA, 64/128/256 Cache	Call
386-40 MHz, 64K Cache	Call
386-33 MHz, 64K Cache	Call
386-25 MHz, 64K Cache	Call
386-25 MHz, OPTI or C&T	Call
386SX 20 MHz or 16 MHz	Call
286-12, 16, 20, 25 MHz	Call

HARD DRIVES

W.D. 95044, 43 MB IDE, 28msec	$165
W.D. CAV280, 85 MB IDE, 18msec	279
Conner CP30084, 80 MB IDE, 19ms	309
Conner CP30104, 120 MB IDE, 19ms	375
Conner CP3204, 213 MB IDE, 16ms	595
Magtron 170 MB ESDI 16ms	Call
Seagate ST238A, 339 MB, IDE	Call
Maxtor 360 MB ESDI, 14msec	Call
Maxtor 360 MB SCSI, 14msec	Call
2400bps Modem/9600bps Fax card	125

MONITORS

12" Amber MDA, 110/220V	$78
14" Amber MDA, 110/220v	98
14" Paper White VGA, 110/220v	115
AAmazing 14" VGA, .39 GX	240
SMS VGA monitor, .31mm	275
AAmazing Super VGA, .28	300
AAmazing Non-Int. VGA, .26	515
AAmazing Non-Int. VGA, .28	350
Sony 1304 Non-Int. VGA, .26	595
NEC 2A/3D/5D	CALL

VIDEO CARDS

MGP, Monochrome w/printer port	$18
VGA, 800x600 OAK, 256K	55
Oak Non-Interlaced, 1024x768 256K	65
PVGA, 1024x768 Paradise, 256K	70
Trident 9000 N.I. 1024x768, 256K	69
Trident 8900C N.I. 1024x768, 1 MB	99
TSVGA, N.I. 1024x768 Tseng, 1MB with ET4000 chip set	125
Orchid Prodesigner II, 1MB	245
M.S. Windows 3.0 w/Z-nix Mouse	69

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SAT 10:30am-5:00pm

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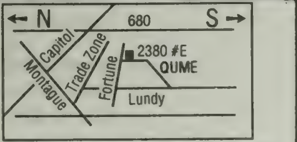
(408) 943-1660

Fax (408) 943-9660
2380 QUME DR. SUITE E
SAN JOSE, CA 95131



Prices Subject To Change W/O Notice

USER GROUPS

User Group. Meetings: 1st Tues., 7:00 pm, 2493 Telegraph Ave., Berkeley. Computer-based tutorials on PageMaker 4.0. Speaker: Dr. C.J. Wallia. Call: (510)548-7712. [Exp. #91.]

EPSON

Bay Area Epson Salts. Meetings: 2nd Tues., 7:30 pm, 2611 Broadway, Redwood City. Call: Joe, (415)364-9232, or Tom, (415)992-5475. [Exp. #86.]

FORTH

Forth Interest Group of North Bay. Meetings: 2nd Sat., 1–5 pm, 2055 Center St., Berkeley. Tutorial at noon. Call: Leonard Morgenstern, (510)376-5241. [Exp. #87.]

Forth Interest Group of San Francisco. Meetings: 1st & 3rd Tues., 6:00 pm. Walk to dinner. Call: John Peters, (415)239-5395. [Exp. #87.]

Sacramento FORTH Interest Group. Meetings: 4th Wed., 7:00 pm, SMUD, 1708 59th St., rm. A. Call: Bob Nash, (916)487-2044. [Exp. #91.]

IBM AND COMPATIBLES

EastBay FOG. Meetings: 2nd Wed. All microcomputers, MS-DOS, CP/M. Call: (510)272-9099. [Exp. #87.]

PC Clubhouse. Meetings: 1st Fri., 8:00 pm, Meiklejohn Hall, CSU Hayward. Many SIGs. CV BBS: (510)581-8529. San Leandro BBS: (510)357-9577. Call: Roberta, (510)429-1007. [Exp. #87.]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, Social Room, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: Larry Welling, (415)593-3391. BBS (415)571-9259. [Exp. #91.]

San Francisco Business Computers. Meetings: 4th Thurs., 5:30 pm. For those who use computers in business. Visitors $5. Call: Jordan Rosenberg, (415)788-5338. [Exp. #91.]

San Lorenzo User Group. Meetings: 2nd Tues. and the 20th, 7:00 pm, Gathering Place in Ben Loman, Santa Cruz County. Call: Chuck Schafer, (408)338-7348, BBS (408)335-4672. [Exp. # 86.]

KNOWLEDGE-MAN

Bay Area KnowledgeMan (and Guru) User Group. Meetings: 1st Tues, 6:30 pm., JNZ, Inc., 826 Las Trampas Rd., Lafayette. A forum for discussion and info concerning mdbs products, esp. KnowledgeMan and Guru. Call: (510)947-4878. [Exp. #89.]

MACINTOSH

MacSEF. Meetings: 3rd Tues., 7:00 pm, Call: Tony Meadow, (415)644-9400. [Exp. #86.]

SPC Apple User Group. Meetings: 2nd Wed., 7:30 pm, Fremont Main Public Library. The **S**ociety for **P**revention of **C**ruelty to **Apple** Computers User Group supports all Apple and Macintosh computers. Call: Jim Weil, (415)796-7169. [Exp. #88.]

The International Macintosh SIG of the Stanford Macintosh User Group. Meetings: 3rd Thurs., 7:00 pm, Call: Schiko Berry, (408)826-7724, weekdays. [Exp. #90.]

Women's Macintosh User Group. Meetings: 2nd Tues., 7:00 pm, ComputerWare, Palo Alto. Call: Buffy Joseph, (415)792-2840 or Tayna Halepota, (415)949-3936. [Exp. #88.]

MULTIMEDIA

The International Interactive Computer Society—IICS. Meetings: 2nd Tues., 7:00 pm, UCSF Laurel Heights Conference Center. Call: (415)328-7318. [Exp. #88.]

MUSIC

Computer Music SIG. MIDI and beyond. All computer types welcome. Call: Bob Brander, (415)592-6993. [Exp. #86.]

NETWORKING

NetSIG. Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)747-4356. [Exp. #87.]

NEURAL NETWORKS

Neural Networks SIG. SIG for Neural Networks and its applications. Call: Kumar, (408)946-5835. [Exp. #88.]

NEXT

BANG—Bay Area NeXT Group. Meetings: 3rd Wed., 7:00 pm, Terman Aud., Stanford. Presentations and lectures. [Exp. #87.]

NOVELL

The East Bay Novell Users Group. Call: George M. Gold, (510)444-4899. [Exp. #86.]

Sacramento NetWare User Group. Call: Charles Raley, (916)752-9561. [Exp. #89.]

Silicon Valley Novell User Group. Meetings: 3rd Wed., 6:30 pm, Coco's, 1305 S. Mary Ave., Sunnyvale. Call: Bill Strouse, (408)453-3321. BBA (408)453-3326. [Exp. #86.]

The San Francisco Novell Users Group. Call: Thomas Thibault, (415)944-9500. [Exp. #86.]

PARADOX

Bay Area Paradox User Group—BAPALS. Meetings: 4th Tues., 4:00 pm, SF State University Downtown Campus. Forum for users and developers at all levels. Call: Robert Smiley, (415)957-4656. [Exp. #87.]

PROGRAMMING LANGUAGES

Silicon Valley Computer Society C Programming SIG. Meetings: 3rd Mon., 7:00 pm, Doubletree Hotel, 5101 Great America Pkwy., Santa Clara. Discuss C related issues and occasional speakers. Call: Fletcher Johnson, (408)283-1333 (days & early evenings). [Exp. #90.]

RACES

California Races Group. Meetings: Tues., 7:00 pm, 1491 River Park Dr., Sacramento. Technical discussions on computerized emergency communications. Call: Jim West, (916)991-5505. [Exp. #87.]

R:BASE

R:Base Users Group of Oakland. Meetings: 2nd Thurs. Call: Longwell Assoc., (510)451-5316. [Exp. #87.]

SQL

SQL_Forum/Bay Area SQL Database Server User Group. Meetings: Once a month in downtown SF. Oracle, SQL Server, SQLBase, and more. Call: Robert Gentry, DBBS, Inc. (415)583-3000. [Exp. #90.]

UNIX/XENIX

UNIX SIG. Meetings: 2nd Tues., Oracle Corp. Fitness Center, Redwood Shores. Sponsored by Software Entrepreneurs Forum. Call: Priscilla Rowe, (415)776-0513. [Exp. #91.]

UNIX/XENIX User Group of N. CA. Write: Just Computers, PO Box 355, Cotati, CA 94931, Attn: User Group. Call: BBS, (707)792-0420. [Exp. #90.]

RESOURCES

Calendar Of Events

Continued from page 218

cisco. Ft. Mason Shows. Call: (916)725-0228.

November 11–13 18th Annual Computer Security Conference And National Exhibition. Miami. Computer Security Institute. Call: (415)905-2234.

November 11–13 Second Annual Multimedia Developers' Conference. San Francisco. MacroMind. Call: (415)442-0200.

November 14 Real Estate Management With Platinum Series Software Seminar. San Francisco. Howard M. Haberman Associates, Inc. Call: Howard M. Haberman, (415)641-0850.

November 15–17 CyberArts International Conference. Pasadena. *Keyboard* magazine. Call: (408)446-1105.

November 18 Aldus Persuasion For PC Class. San Francisco. Informative Edge. Call: (415)392-5544.

November 18–20 Time Line 4.0 Seminar. San Francisco. Symantec Training Group. Call: (415)898-1919.

November 21 Accounting Systems Seminar. Oakland. David A. Simon, CPA. Call: (510)893-5753.

November 21–22 Q&A 4.0 Seminar: Database/Word Processing Software. San Francisco. Symantec Training Group. Call: (415)898-1919.

November 25 FileMaker Pro Class. San Francisco. Informative Edge. Call: (415)392-5544. ■

NOVEMBER 11–13

COMPUTER SECURITY CONFERENCE & NATIONAL EXHIBITION

Miami

The 18th Annual Computer Security Conference and National Exhibition, with over one hundred speakers, will address the full range of issues facing computer security practitioners in business and government. According to conference chairman, Tom Peltier, of General Motors Corp., "The dramatic and rapid shift towards networked and distributed computing is making the job of the computer security practitioner more challenging than ever. Coupled with the tightening corporate budgets, this places even greater demand on the ingenuity and resourcefulness of the computer security practitioner." To meet these demands, this year's conference is designed to help practitioners make the most efficient use of their resources; many of the sessions will focus on specific low-cost solutions to typical security problems. To register, contact: Computer Security Institute, 600 Harrison St., San Francisco, CA 94107. (415)905-2234.

BASIC SYSTEM CONFIGURATION

Motherboard & CPU, 1 MB (512kb for 286-12 & 286-16 systems) memory installed, 1:1 2HD/2FD controller, 1.2 MB or 1.44 MB Floppy Drive, Internal clock/calendar, Mathematical coprocessor socket, Enhanced case with Power Supply, and 101-key Enhanced Keyboard.

486-33C EISA w/64k cache	$1,848
486-25C EISA w/64k cache	$1,748
486-33C ISA w/cache	$998
486-25C ISA w/cache	$928
486SX-20C w/cache	$858
386-40C w/64k cache	$698
386-33C w/64k cache	$598
386-33	$558
386-25C w/64k cache	$558
386-25	$508
386SX-20 w/16k cache	$468
386SX-20	$418
386SX-16	$388
286-25	$398
286-20	$348
286-16	$298
286-12	$278

HARD DRIVES

40MB/35ms (MFM)	$174	130MB/18ms (IDE)	$358
40MB/28ms (IDE)	158	143MB/18ms (IDE)	398
80MB/18ms (IDE)	274	200MB/16ms (SCSI)	648
89MB/18ms (IDE)	274	200MB/16ms (IDE)	548
120MB/18ms (IDE)	344	338MB/16ms (ESDI or SCSI)	1,088
		676MB/16ms (ESDI or SCSI)	1,398

MISCELLANEOUS

14" SVGA (1024x768, 0.28) Monitor with 16-bit SVGA card	$348	Citizen GSX-140 (24-pin)	$268
14" VGA Color Monitor with 16-bit VGA card	258	Citizen GSX-145 (24-pin)	398
12"/14" VGA Mono Monitor w/MGP card	88/108	Citizen 200GX (9-pin)	154
Monographic card with printer port	18	Color option for Citizen printer	48/68
NEC 4DS/NEC 3D/NEC 2A	998/598/398	Panasonic KX-P1180 (9-pin)	154
Sony 1304 HG (1024x768, 0.25)	574	Panasonic KX-P1123 (24-pin)	228
Nanao 9070U/9080i	898/1074	Panasonic KX-P1124 (24-pin)	254
Oak VGA 256K (800x600,16-bit)	58	Panasonic KX-P1124i (24-pin)	288
Trident 1MB (1024x768x256)	88	Panasonic KX-P1624 (24-pin)	358
Ahead VGA Wizard Deluxe w/1MB (70 MHz)	138	Windows 3.0 + Super Mouse II (400 dpi)	68
Orchid Prodesigner IIs w/1MB (w/sys. purch.)	BEST	Internal Modem 2400 baud	54
Diamond Speed Star w/1MB	144	Fax Modem (9600 Fax, 2400 Modem)	98
Motherboard with CPU	Call	Logitech Mouseman serial (400 dpi)	66
		Logitech Mouseman bus (400 dpi)	72
		Best prices on memory upgrades	Call

BEST PRICES IN TOWN

CALL FOR UPDATE PRICES

HI-TECH USA

MONTHLY SPECIALS

486-33C
ISA w/cache system

Basic System Configuration ■ 120 MB, 18ms Hard Drive ■ 14" SVGA Monitor w/16-bit SVGA card

$1,688

486-25C
ISA w/cache system

Basic System Configuration ■ 120 MB, 18ms Hard Drive ■ 14" SVGA Monitor w/16-bit SVGA card

$1,618

386-33C
w/64k cache system

Basic System Configuration ■ 120 MB, 18ms Hard Drive ■ 14" SVGA Monitor w/16-bit SVGA card

$1,288

386-33
SVGA system

Basic System Configuration ■ 80 MB, 18ms Hard Drive ■ 14" SVGA Monitor w/16-bit SVGA card

$1,178

386-25C
w/64k cache system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" SVGA Monitor w/16-bit SVGA card

$1,058

386-25
SVGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" SVGA Monitor w/16-bit SVGA card

$1,008

386-20SX
VGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" VGA Monitor w/16-bit VGA card

$828

386-16SX
VGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" VGA Monitor w/16-bit VGA card

$798

286-25
VGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" VGA Monitor w/16-bit VGA card

$808

286-20
VGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" VGA Monitor w/16-bit VGA card

$758

286-16
VGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" VGA Monitor w/16-bit VGA card

$708

286-12
VGA system

Basic System Configuration ■ 40 MB, 28ms Hard Drive ■ 14" VGA Monitor w/16-bit VGA card

$688

HI-TECH USA

HI-TECH USA

VISA

Hours: M-F 9am - 6:30 pm, Sat. 10am - 4pm

- *One year warranty/parts & labor on systems*
- *Knowledgable Technical Support Engineers in service*
- *Prices & availability subject to change w/o notice*
- *Shipping , insurance & COD charges are extra & non-refundable*
- *Not responsible for typos*
- *Prices based on cash purchase*

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Phone (415) 508-8688 ext. 100

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(415)
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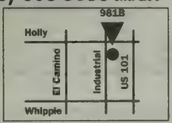
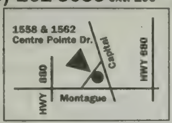


SOUTH BAY

1558 & 1562 Centre Pointe Dr., Milpitas, CA 95035

Phone (408) 262-8688 ext. 100

Fax
(408)
262-8772



CAD / GRAPHICS

EXP 486/33 CAD Workstation

- 486/33MHz 64KB Cache system
- 8MB (60ns) main memory standard
- Conner 200MB HDD (16ms)
- TEAC1.2 & 1.44MB floppy disk drives
- Vertical case w/230W P/S Dual voltage
- 101 Keytronics keyboard, 2 serial / 1 parallel ports
- 20" multi-frequency monitor (1280X1024)
- #9GX TI 34010 based graphics card (1280X1024)
- 12X12 Calcomp digitizer
- Ideal system for AutoCad, CadKey, Windows, etc..

(Call for Custom Configurations) **$5,995**

Number Nine
Computer Corporation

#9GX Graphics card

- TI 34010/60MHz processor
- 1024X768 non-interlaced
- Built-in MDA, VGA pass-thru
- Upgradable to 1280X1024
- Driver for Windows 3.0, AutoCad..
- Display List software included
- Level 2

$795

DEFINICON
Definicon International Corp.

CAD / RACE VGA

- EDSUN Anti-aliasing chip
- Up to 800,000 colors
- 2048X2048 effective resolution
- Display list for AutoCad
- Drivers for Windows 3.0 & Autocad
- Come in and See a Demo

$395

Hercules

Hercules Art Dept.

- With Hercules Graphics Station
- Lumena 32 software
- TI 34010/60MHz processor
- 16.7 million colors
- VGA included
- Made for design professionals
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MultiVision 875

- 17" flat color monitor (.26mm dot)
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- Anti-Glare, Silica Coated Screen
- Dual Voltage Power Source

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DraftPRO DXL Plotter

- A-D size, 8 pens
- Media: Paper, Trans. film, Vellum
- Speed 32 ips, Acceleration 2.5g
- Resolution .0005 inch
- 1 MB or 2MB buffer Option
- 3 year onsite warranty from HP

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SPEA

SPEA 1280

- 1280X1024 res. w/ 256 Col.
- TI 34020 graphics co-processor
- 2MB VRAM and 1MB DRAM
- 100% compatible VGA built-in
- OS: TIGA, HOOPS, DGIS, CGI
- AutoCAD display list driver

$1,945

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TRUE COLOR

16.7 M. colors in Windows

OPTA MONALISA

- TI 34020 based graphics card
- 1024X768 resolution
- 24 bit colors in Windows 3.0
- Built in VGA
- 4MB VRAM on board
- Optional image compression
- 24bit ADI driver avaliable
- 72 Hz hi-refresh rate

$1,695

600DPI Scanner

MICROTEK 600Z

- Max. 16.7 million color
- Up to 256 grey shades
- 8.5" x 13.5" size (flat bed)
- 14 brightness setting
- Interface card for PC or Mac
- PhotoStyler software for PC
- Photoshop software for Mac

$1,695

Affordable 32K color

SpeedStar Hi-Color

- 32K color in Windows 3.0
- 1024 X 768 max. resolution
- ET 4000 chipset
- 72 Hz hi-refresh rate
- 100% VGA compatible
- 1MB RAM standard
- 5 years warranty

$265

WINDOWS (GRAPHICS) UPGRADES

PC MAGAZINE EDITORS' CHOICE

June, 1991

Graphics Card

ATI 8514/Ultra (1024X768) $495

Volante AT1000 (1024X768) $895

PC MAGAZINE EDITORS' CHOICE

March, 1991

Monitor

NEC 4D (16", 1024X768) $995

IDEK 5117 (17" flat, 1024X768) $1,045

ATI 8514/Ultra	with NEC 4D	$1,445,	with IDEK 5117	$1,495
Volante AT1000	with NEC 4D	$1,845,	with IDEK 5117	$1,895

Monitors

21" Toshiba(P21CM00)	$2,395
21" IDEK(5221)	$2,295
20" Calcomp(3060)	$2,395
20" Mitsubishi(6905ATK)	$1,945
20" Hitachi(HM4319)	$1,945
20" Nanao(9500)	$2,695
20" Cadvision(TX2013)	$1,795
20" NEC 5D	$2,195
17" Toshiba(P17CM01)	$1,445
17" IDEK(5117)	$1,045
17" Taxxan(875)	$1,295
16" NEC 4D	$995
16" Nanao(9070S)	$895
16" Nanao(9080I)	$1,395
16" Mitsubishi(6615ATK)	$995
15" Relisys SVGA	$475

Graphics Adaptors

Calcomp 3402(1280X1024,256 col)	$2,595
Volante AT1200 (1280X1024,16 col)	$1,995
Video 7 Spea1280(1280X1024,256 col)	$1,995
Number 9 #9GX(1280X1024,256 col)	$1,595
Hecules Graphics(1024X768,256 col)	$695
Metheus 1104 plus/16	$945
Monalisa (1024X768,16.7 million col)	$1,695

Many other models avaliable

Plotters

Calcomp2024(A-D)	$3,295
Calcomp2036(A-E)	$4,295
HP7475A(A-B)	$1,395
HP7575A(A-D)	$3,195
HP7576A(A-E)	$4,095
HI DMP61(A-D)	$2,995
HI DMP62(A-E)	$3,995
Enter SP600(A-B)	$695
Enter SP1800(A-D)	$3,295
Enter SP2800(A-E)	$4,195
Ioline LP3700(A-E)	$2,995
Roland GRX300(A-D)	$3,295
Roland GRX400(A-E)	$4,195
Numonics5010(A-D)	$2,995
Numonics5030(A-E)	$3,395

Digitizers

SummaSketch II(12X12)	$325
SummaSketch II Pro	$639
Kurta 12X12	$375
Calcomp 12X12	$295
Calcomp 12X18	$595

JEMINI

ELECTRONICS

The House of CAD & Graphics Equipment

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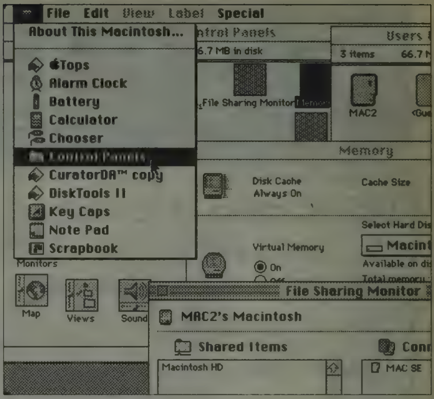
Phone (408)727-9986
Fax (408)727-7687
M-F : 9-7 Sat : 10-4

SPEA CalComp A Lockheed Company Liberty TOSHIBA TOSHIBA AMERICA CONSUMER PRODUCTS, INC. SIGMA DESIGNS



System 7 has multiple control panels to customize various options; settings for memory and file sharing are shown in the picture.

Continued from page 124

OTHER USEFUL INFORMATION

A quick summary of other need-to-know System 7 information before we close out this part of the review: A full installation occupies 3.5–4MB of hard disk space. A custom installation with minimal DAs and extensions may save you 512K to 1MB of disk space. The average amount of memory used by System 7 is around 1.5MB. It can be cut down to somewhere around 1MB by removing most of the drivers in the Extensions folder. With my usual set of DAs and INITs, the system used about 2400KB.

WHAT RUNS/WHAT DOESN'T

The Compatibility Checker stack has recently been updated (latest version available from Apple or on the BMUG BBS). The compatibility report includes vendor names and telephone numbers so that you can call and ask questions.

BMUG's list of things that won't work—no way, no how—includes MacWrite, v5 and below; MacDraw (first series); CEMail; QuickMail; PCTools, v1; Norton Utilities, v1.01; and Quark XPress (up to v3.0). Quark XPress, v3.01 has been reported to be mostly 7-compatible, except for printing with TrueType fonts.

The following set of museum pieces I tested were marked "Must Upgrade," but appeared to run with no difficulty: Adobe Illustrator, v1.8.3; Aldus FreeHand, v2.0; Curator, v1; DOS Mounter, v1.1; HyperCard, v1.2.2; ImageStudio, v0.94; StuffIt Deluxe, v1.51; TOPS, v2.1; Virex INIT, v1.6.

The next set of programs was marked [Information] "Not available." These included Cricket Draw 1.01; PageMaker 3.0; Ready, Set, Go, v3.0 and 4.0; Red Ryder 10.0; and Vision Lab 0.67. All of these applications appeared to run on my system under the default configuration, or even with Virtual Memory turned on. TOPS, Virex, and DOS Mounter didn't work with 32-bit addressing. Compatible upgrades are available for most of the things in this list. Again, Apple warns that it takes no responsibility for problems that may result from running a contraindicated application.

TOPS is a curious case. The upgrade version of TOPS, v3.01, is completely incompatible with System 7, as reported by both Apple and Sitka. I've had good luck running the older version, 2.1. In part two of this review we'll cover networking options: how to set up TOPS 2.1, AppleShare, and Claris Public Folder to provide fairly thorough file sharing and printer access to System 7, System 6, and DOS clients on the same network. We'll also look at System 7's advanced features with some "System 7 Savvy" applications. ■

RESOURCES:

System 7 Operating System from Apple

SystemSwitcher by Keisuke Hara, available on America Online

System Picker from Kevin Aitken (@Applelink, Aitken.K), available on BMUG BBS and America Online

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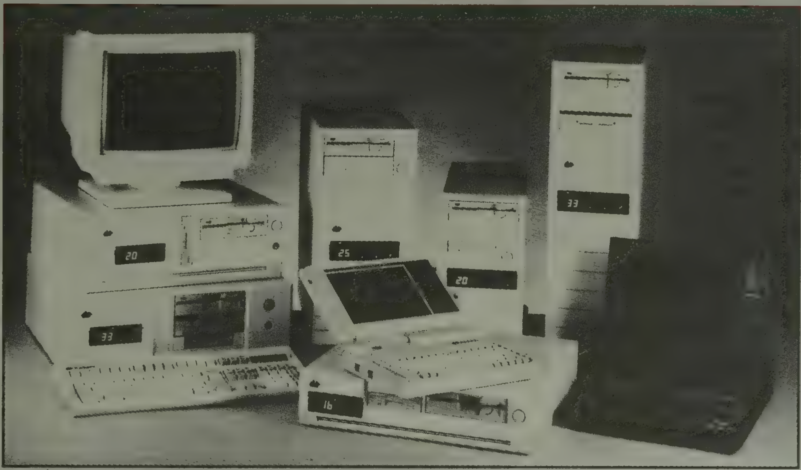

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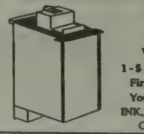

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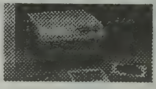

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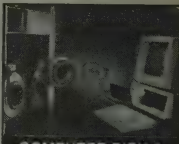

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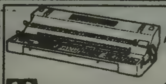

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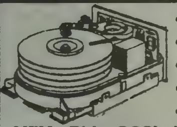

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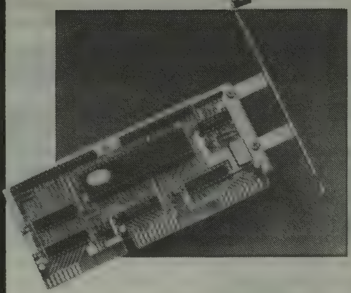

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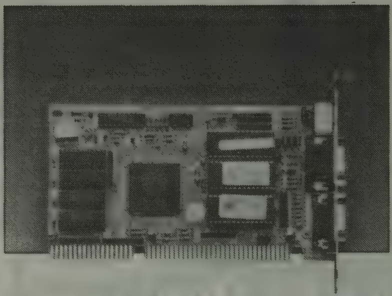

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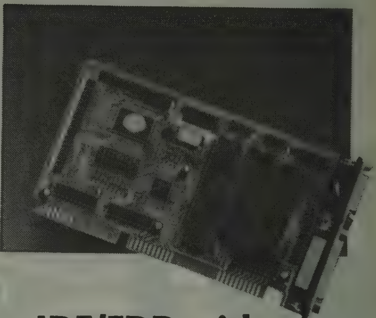

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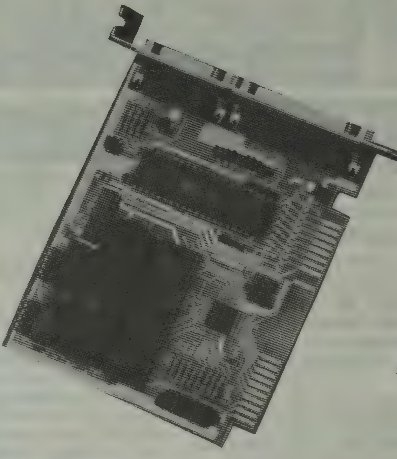

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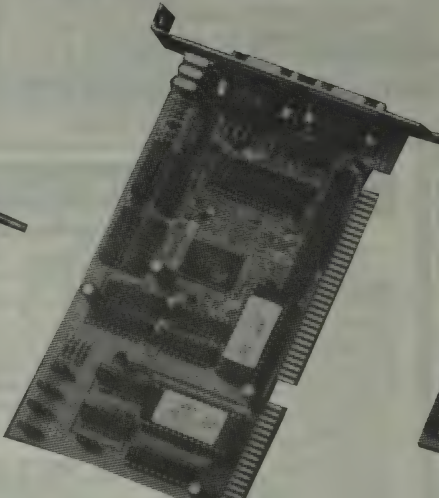

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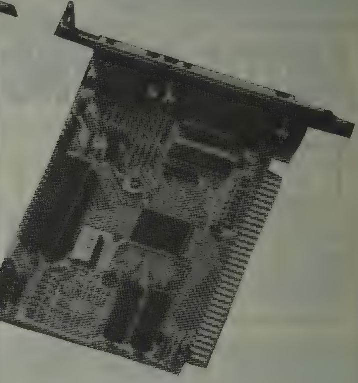

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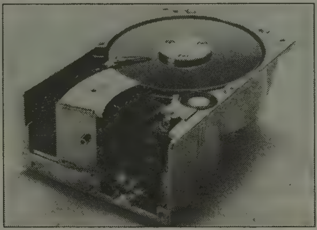

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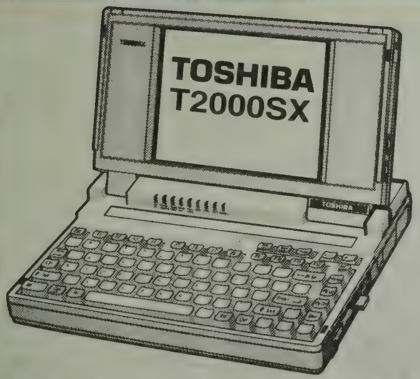

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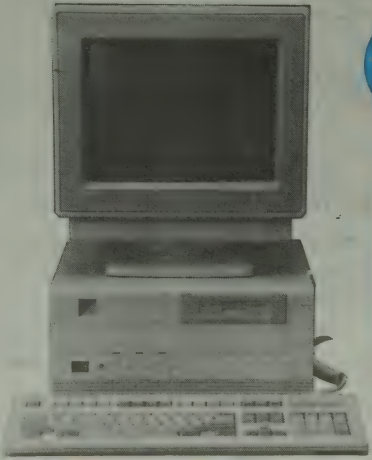

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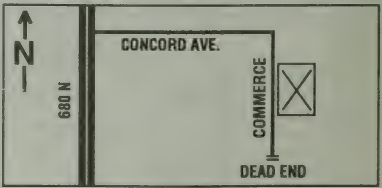

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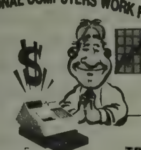

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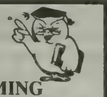

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Continued from page 196

those individuals who are planning on programming on the Amiga.

The developer's section assumes that you are already familiar with either C or Assembler. It includes discussions of basic input and output dos.library functions, file handlers, buffered I/O, parsing, and calling ADOS routines. There is also a discussion of Commodore's ALink linker.

The technical section covers the ADOS file system, including discussions of the Old and Fast file systems, file structures, data structures, binary file structures, and some hints on how to use ADOS with a minimum reliance on Intuition.

While *The AmigaDOS Manual* is not the only book you'll need if you plan to program on the Amiga, I think you'll find it a worthwhile addition to your library. ■

RESOURCES:

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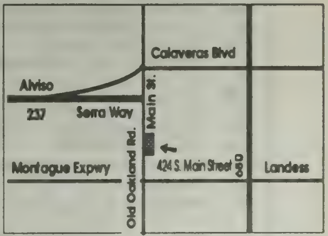

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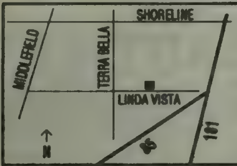

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2. 1 Meg. 256k. 64k

DRAM

1 Meg x 1 - 8	$4.50
256K - 8/10	1.25/1.20
256K x 4 - 8	4.70
64K - 10	1.25
64K x 4 -10	2.10

SIMM

4 Meg x 9 - 8	175
1 Meg x 9 - 7/8/10	43/41/41
256K x 9 - 8	14

SIPP

1 Meg x 9 - 8/10	43
256K x 9 - 8/10	15

MEMORY for

Apple, AST, AT&T, Compaq, Dec, Dell, Epson Everex, HP, IBM, Nec, Sun, Zenith	call

3. BOOKS

All New Books 15% - 50% off
Microsoft Press
Osborne MacGraw-Hill Press
Peachpit Press (Desktop Publishing)

4. CD ROM

SONY (with controller, no software)

CDU 535-11 380ms SONY BUS int, hf ht	$459
CDU 7101 380ms SONY BUS ext, hf ht	635
CDU 541-01 380ms True SCSI BUS int hf	525
CDU 541-01 without controller	435
CDU 6211 380ms True SCSI BUS ext hf	685
CDU 6211 without controller	575

5. CASES

XT Case / AT Case	$30/50
Baby AT w/ 200W Power	105
Baby Tower w/ 200W Power	115
Mid Baby Tower w/ 200W Power	135
Tower AT w/ 230W Power	165
King Tower Case w/ 375W Power	645
Hard Disk Drive External Casing	
2 half ht or 1 full ht, 60W	69
2 half ht or 1 full ht, 60W, 11lbs	119
3 half ht or 2 full ht, 60W, space for additional power, 13lbs	139

6 CONTROLLERS

4 Floppies w/ IDE controller	$49
IDE controller for XT and 8 bit drive	35
Gen Card (XT)	55
SCSI controller for AT	115

ADAPTEC

2322D 1:1 ESDI	185
1542B SCSI w/ kit	299

DTC

6280 1:1 ESDI	135
7280 1:1 MFM	70
7287 1:1 RLL	79

DTK

Floppy Controller (XT)	18
Controller 1.2 & 1.44 (XT, AT)	35
IDE Controller DTK/Non-DTK	35/30
IDE w/ AT I/O (2SP,G)	59

FUTURE DOMAIN SCSI Controller

TMC 850 for XT (H only)	79/139 kit
TMC 875 for XT (F & H)	129/209 kit
TMC 860 for AT (H only)	119/139 DOS/189 kit
TMC 885 for AT (F & H)	139/169 DOS/259 kit
TMC 1660 for AT (H only)	159/199 DOS/289 kit
TMC 1680 for AT (F & H)	189/239 DOS/309 kit

ULTRASTOR

ULT 12F/32 32K ESDI cache	185
ULT 12C/1 1MB ESDI cache	565

7 DIGITIZERS

Calcomp 23120 12"x12" 4 button	$289
Seiko DT3613 12"x12" 4 button & pen	289
SummaSketch II 12"x12" 4 button & pen	325

8. DRIVES

TEAC (Floppy Drives)

360K / 720K with frame	$56/56
1.2MB 5.25"	59
1.44MB 3.5" w/ frame	59

CONNER (IDE)

CP-3000 40MB 25ms 1"	179
CP-3044 40MB 25ms 1"	209
CP-3104 100MB 25ms 3.5"	335
CP-30104 120MB 19ms 1"	355
CP-3204F 200MB 16ms 3.5"	575

MAXTOR

4170-170 157MB 14ms ESDI 5.25" full	745
8380-380 360MB 15ms ESDI 5.25" full	1095
8380S-380 360MB 15ms SCSI 5.25" full	1115
8760-760 676MB 16ms ESDI 5.25" full	1595
8760S-760 676MB 16ms SCSI 5.25" full	1625
MXT-7120A 130MB 15ms IDE 3.5"	375
LXT 213SY 200MB 15ms SCSI 3.5"	645
LXT 213A 213MB 15ms IDE 3.5"	605

MICROSCIENCE

HH1090 80MB 25ms MFM 5.25" half ht	325

NEC

D3142 40MB 28ms MFM 3.5"	265
D5655 150MB 18ms ESDI 5.25" half ht	589

PLUS DEVELOPMENT (Hard Card)

Hardcard II 80 80MB, 19ms	499
Hardcard II XL 50 50MB, 9ms	389
Hardcard II XL 105 105MB, 9ms	575

SEAGATE

ST-225 20MB 65ms MFM 5.25" half ht	190
ST-251-1 40MB 28ms MFM 5.25" half ht	235
ST-157A 40MB 28ms IDE 3.5"	179
ST-1102A 89MB 19ms IDE 3.5"	295
ST-1239A 211MB 15ms IDE 3.5"	585
ST-277N 64MB 28ms SCSI 5.25" half ht	295
ST-296N 84MB 28ms SCSI 5.25" half ht	325

SYSGEN

Easy Floppy for all AT 720K/1.44MB	90

9 EXTERNAL DRIVES

DELTAIC

SuperBaby w/ power & carrying case, 2.25lb 40MB 25ms / 117MB 19ms	555/785

SYSGEN

Portable EasyFloppy 3.5"/5.25" for laptop	235

10. I/O CARDS

DTK

Hexa I/O (XT : S,P,G,Clock,Cont)	$40
Penta I/O (XT : S,P,G,Clock)	33
AT I/O (S,P,G)	32
Mini AT I/O (S,P)	29
AT I/O w/ IDE Controller	59
Serial Card (XT only)	17
Printer Card / Game Card (XT, AT)	17

EVEREX

Magic AT I/O	49
Magic AT I/O w/ Game port	57
Second serial port	25

11. KEYBOARDS

NORTHGATE OMNI

101NI / 102 / Ultra	$69/71/95
Keyboard cover for 101 / 102 / Plus / Ultra	15

OTHERS

KEYTRONIC 101	45
MAXI 101	40
MITSUMI 101	40
Wrist Pro (wrist support)	20

12. LAPTOPS

ACER

1120NX 386SX-20, 1MB, 1.44FD VGA LCD backlit, DOS, 7 lb 40MB / 60MB HD	$2575/2855

AST

386SX-20 Model 23V 2MB, 1.44FD, 20MB HD, DOS 3.3	2445

CANON

BJ-10e (Bubble jet printer, 4.5lb)	319

See Printers Section #21

EVEREX

Tempo LX 386-16SX, 1MB, VGA LCD 1.44FD, 20MB HD, DOS 4.01, 7lb	2095
Tempo LX 386-20SX 40MB HD	2595
Tempo LX 386-20SX 60MB HD	2895
2MB card (3rd party)	235
Battery / Charger / Modem	125/125/275

MICRONICS

386-25, 4MB, 1.44FD, 40MB HD, DOS 4.01& Windows 3.0	2795

SAMSUNG

Notemaster 386SX-16 1MB, 1.44FD, 20MB HD 640x480 VGA display, Win 3.0 & Lap-Link	2095

TWINHEAD

386SX-20 1MB, 1.44FD, 40MB HD, LCD	2329

TOSHIBA

T1000SE / T1000XE	985/1195
T1200XE - 20 / 40	1875/2125
T1600X - 20	2235
2400 Int modem	149

MEMORY for laptops

Compaq, Epson, Everex, Nec, Panasonic, Sharp,Texas Instrument,Toshiba, Zenith	call

13. LASER PRINTER ACC

ADOBE . . . see Adobe in Software section #23

AVERY

Laser Printer Labels 1" x 2 5/8"	22
Laser Printer Labels for 5.25" diskettes	30
Laser Printer Labels for 3.5" diskettes	30

COMPUTER PERIPHERALS

Jet Page (for HP II)	295
Jet Memory 1MB (for HP IIP, III)	109

HP . . . see HP in Printer section #21

IQ ENGINEERING

Super Cartridge 1 for all HP Laser&True HP Compatibles	209
Super Cartridge 2 for HP II, IID, IIP, III, IIID	295
Super Cartridge 2 & 2LC	395
Super Cartridge 3 for HP III, IIID	275
Desk Jet 500 Std / Pro	115/145
Desk Jet Plus Std / Pro	105/145
Desk Jet 256K memory	115

PACIFIC DATA see top of next page

PANASONIC see Panasonic in section #21

MEMORY for Laser Printers

Apple, Canon, Epson, HP, IBM, Konica, Okidadta Panasonic, QMS, Texas Instruments	call

14. MEMORY CARDS

ACCULOGIC

up to 8MB(SIMM), 8/16 bit, for XT,AT	$195
RAMpAT! up to 16MB(SIMM), 16 bit for AT	120

DTK 640K RAM Card (XT only)	29

EVEREX

XT 2MB, EMS	55
Ram 3000 Deluxe (AT 3MB, EMS)	84
Ram 8000 (AT 8MB, EMS)	165
Ram 10000 (AT 10MB, EMS)	125
Ram II 4000 (PS/2-5,6,7,80)	175

INTEL

Above Board w/ 512K	275

MEMORY for

Apple, AST, AT&T, Compaq, Dec, Dell, Epson Everex, HP, IBM, Nec, Sun, Zenith	call

15. MODEMS & FAX

EVEREX

Evercom II (1200 Baud Internal)	$48
Evercom 2400 Baud Internal	84
Evercom 2400 Baud Internal w/ MNP5	139
Evercom 9600 Baud Internal v.32 w/ MNP5	495
Evercom 2400 Baud External w/ MNP5	185
Fax Modem 2400/9600 Internal w/ MNP5	239
Pocket Modem for Laptop 2400 w/ MNP5	215

FRECOM

Fax 96	109
Fax 96 w/ 1 Liner & Far Fetch Fax	175

HAYES

9600 v.42 & x.25 BIS	525
Personal Modem 2400	165
SmartModem 2400B Internal/ External	245/385

INTEL

9600EX (9600 baud external modem)	489
SatisFaxtion card	385

VIVA (Computer Peripherals)

2400 Baud External for IBM / Mac	99/125
2400 Baud External w/ send fax	119
2400 Baud External w/ MNP5(for IBM/Mac)	139

16 MONITORS

ADI

14" VGA, 1024x768, .28	299

CORNERSTONE

Dual Page Display mono	1095
Dual Page Controller	725

HITACHI

CM2085MU 20", 1280x1024, .31, Non-Int	1795

MATSUSHITA

ViewPerfect 2 14" VGA, 640x480, .29	295
ViewSonic 4 14", 1024x768, .29, Int	325
ViewSonic 5 14", 1024x768, .25, Non-Int	545
ViewSonic 6 14", 1024x768, .28, Non-Int	395

MITSUBISHI (w/ base)

HL6605ATK 16", 1280x1024, Non-Int	995
HL6935ATK 20", 1280x1024, .31, Non-Int	1795
Cable	45

NANAO

9070U 16", 1024x768, .28, Non-Int	975
9080i 16", 1280x1024, .28 Non-Int	1355

NEC

2A 14", 800x600, .31	429
3D 14" Multisync, 1024x768, .28, Int	559
3DS 14", 1024x768, Int	579
4DS 16", 1024x768, .28, Non-Int	1095
5D 20", 1280x1024, .31	1995
Plus 14" Multisync, 960x720, .31, Non-Int	555

PANASONIC

1381 14" Super VGA, 1024x768, .28	345

POWER II

3E 14" Super VGA, 1024x768, .28, Int	299
4E 14"Multisync, 1024x768, .28, Non-Int	359

QUME

835 14", 1024x768, .28, Int	335

SAMSUNG

MA2565 12" mono amber	75
MZ4571 14" mono paperwhite	115
ML4571 14" VGA mono 640x480	125
CJ4686 14" VGA, 640x480, .52	225
CVB4581 14", 1024x768, .31, Int	325
CVB4997 14", 1024x768, .28, Int,Non-glare	345
CSA 7571 17", 1024x768, .31, Non-Int	895

SEIKO

CM1450 14", 1024x768, .25, Non-Int	549

SONY

1304 14", 1024x768, .25, Non-Int	579

STANDARD TECHNOLOGIES

428UVGA 14", 1024x768, .28, Non-Int	435
441 VGA 14", 800x600, .41	245

TAXAN

UV1000 20", 1280x1024, .31, Non-Int refurbished / new	1450/1850

17. MOTHERBOARDS

286-12/16	$99/125
386SX-16/20/25	215/265/305
386-33 w/ 64K cache w/o CPU	275
386-40 w/ 128K cache w/o CPU	295
486-50 w/ 128K cache w/o CPU	395
486-50 w/ 256K cache w/o CPU	475

AMI

386-33M4/ 25M3 w/ 64Kcache	1095/975
486-25 128K cache, 4MB ISA	2695
486-25 64K cache EISA	2295
486-33 128K cache ISA/ 64K EISA	2395/2745

DTK

386SX -16 / 20	255/315
386-25 w/o cache	425
386-33 64K cache	595

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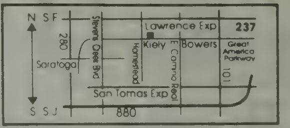

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- Not responsible for typographical errors

PACIFIC DATA PRODUCTS for HEWLETT PACKARD

FONT CARTRIDGES

25 In One! III (for HP II, IID, IIP,III)	245
Complete Font Library (for HP III, IIID)	255
Font Bank (NEW) stores soft fonts, 3/4MB	205
Headlines Cartridge (for HP II, IID, IIP)	185

POSTSCRIPT Emulation

Pacific Page & 2MB (for HP II)	389
Pacific Page P.E. (for HP IID,IIP,III,IIID, IIIP)	325
Pacific Page XL (for HP IIP,III,IIID) comes with 2MB & accelerator board	715
Pacific Page P.E. & Pacific Talk for Mac & HP IID,IIP,III,IIID	450
Pacific Page XL & Pacific Talk	845
Pacific Type	245

MEMORY

1-2-4 Plus (for HP II, IID)	
1MB	$139
2MB	179
4MB	269
Pacific 4 Memory (for HP IIP, III, IIID, IIIP)	
1MB	109
2MB	149
4MB	239
LP Memory (for IBM 4019E)	
1MB	129
2MB	179
3.5MB	249
Pacific T Memory (for Epson 6000)	
2MB / 4MB	209/299

OTHERS

Driver & cable for Mac & HP II,IIP, IID, III	$95
Pacific Bar Code (for HP II)	315
Pacific Bar Code P.E. (for HP IID, IIP, III)	315
Paicfic Connect (for HP II, IID, IIP, III, IIID) connect up to 5 PC and/or Mac to a printer	
256K	265
1.25 MB	299
Pacific Print (for network & HP II, IID, IIP, III, IIID)	225
Plotter in a Cartridge (for HP II)	225
Plotter in a Cartridge P.E. (for HP IID, IIP, III, IIID)	225

VLSI

286-12	115

MICRONICS

386SX-20 Multi I/O w/ IDE on board	315
386-25 (no cache) BMP-ASIC	495
386-25 64K cache BCP-ASIC	665
386-33 64K cache ACP-ASIC (2S 1P, IDE adapter on motherboard)	795
386-33 64K cache BCP-ASIC	725
486-25 64K cache EISA	1675
486-33 64K cache ISA/EISA	1395/1795

MICRONICS ACCESSORIES

4MB Piggy Back (to 8MB)	455
16MB Memory Card	150
32K 2-Way cache	40
BOIS Award / Phoenix (386)	60/pair

18. MOUSE

APPOINT

MousePen Pro (portable)	$69
Thumberlina	69

LOGITECH

Catchword	89
Cordless Mouse	119
Dexxa serial mouse	27
First Mouse serial	49
Mouseman Serial / Bus	64/68
Mouseman Serial w/ Windows 3.0	129
Scanman Plus / 256	139/275
Trackman Serial / Bus	80/85

MICROSOFT

Ball Point Mouse (new)	119
Mouse Serial 200PPI	69
Mouse Serial / Bus 400PPI	89

MOUSE SYSTEMS

Omni Mouse II	29
PC Mouse III (optical) serial	69
PC Mouse III Bus w/ Power Panel (optical)	89
PC Trackball	49
The White Mouse w/ Power Panel	56

19. NETWORK

3COM

3C503 8 bit	195
5 packs (5 boards 1 manual)	799
3C503-TP 8 bit / 5 packs	269/1160
3C505 16 bit, 256K / 5 packs	579/2620
3C507 16 bit / 5 packs	289/1250

ANTISOFT

Lantastic AE-2 Ethernet starter kit 10Mbps	469
Lantastic AE-2 Ethernet adapter 10Mbps	215
Lantastic AE-2 Ethernet 64K RAM upgrade	45
Lantastic AE-2 Ethernet boot ROM	45
Lantastic /AI software	69

HAYES

Ethermate 8 ethernet adapter 8 bit	105

WESTERN DIGITAL

Ethercard Plus Elite 8bit / 16 bit	145/185
Netware Boot Rom	34

CABLES & ACCESSORIES

all ethernet cables & others	call

20. POWER SUPPLIES

150W / 200W (XT)	$45/55
200W for Baby AT & Tower	55
230W (AT)	58
230W for Tower	69
Leadman (UPS) 330W / 500W / 1200W (UPS)	199/399/999
Dakota PowerSave500 (200W UPS Internal)	129

21. PRINTERS

BEZIER (Postscript compatible)

BP4040 2MB, 4ppm, 35 fonts	$1415

CANON

BJ-10e w/ bag (Bubble jet)360 dpi,37K buf	319
Auto Sheet Feeder	79
Battery / Print Head Cartridge	45/22

CITIZEN

GSX 200 (9 pin)	165
GSX 130 / GSX 140 (24 pin)	249/265
Color Option for above printers	45
Auto Sheet Feeder for GSX 140	109
GSX 145 (24 pin, 132 column)	399
Color option for GSX 145	65
PN48 notebook printer, 1ppm, 2lb	360

EVEREX ABATON (Postscript compatible)

Laserscript 3MB,6ppm,35 fonts	1295
Laserscript LX 2.5MB,6ppm,35 fonts	1495

FUJITSU

DL1100 mono / color	295/339
DL3600 mono	569
DL4600 prints 5-part form, bar code mono / color	995/1129

HEWLETT PACKARD (w/ toner)

Desk Jet 500	489
Laser Jet IIP	829
Laser Jet III / IIID / IIIP	1515/2495/1049
Accessories:	
Envelope Cassette(15 envelopes) for III	69
Envelope Cassette for IIP	79
Envelope Feeder for IIID	295
HP Postscript Cartridge	495
Legal Tray for HP II & III	69
Lower Cassette for IIP	160
Paper Tray for IIP	69
Toner for HP II / IIP/ III/ IIIP	85/75/85/75

LASERMASTER (Printer Controller)

Series III Professional 2MB, 35 typefaces, 400x400 Turbo Res	1155

PANASONIC

1180 / 1123	159/229
1124i / 1624	289/369
32K Buffer for above printers	65
Serial interface card	75
4420 Laser	829
1MB Memory Card	169
Developer KX-PDP2	95
Drum KX-PDM2	99
Envelope Tray KX-P431	59
Fonts Card	95
Legal Tray KX-P425	45
Toner KX-P451	39
4450i Laser	1175
1MB Memory Card	169
Developer KX-PDP1	95
Drum KX-PDM1	145
Envelope Tray KX-P430	59
Fonts Card	95
Legal Tray KX-P420	45
Toner KX-P450	35
4455 (Postscript) same as 4450i	1975

QMS

QMS-PS 410 4ppm, 2MB, 45 Fonts	1795
1MB / 2MB / 4MB Memory	129/179/269
Envelope Tray	69
Legal / Letter Tray	69
Lower Paper Cassette	160
Toner	95
QMS-PS 810 8ppm, 2MB	2735
QMS-PS 2210 / 2220	call
ColorScript 100-10 4MB, 35 Fonts	6595
ColorScript 100-30i	call

SEIKO

Smart label Printer Plus (IBM/APPLE)	175

PELICAN

All type ribbons	visit us
Toner for Laser Printers	visit us

MEMORY for Laser Printers

Apple, Canon, Epson, HP, IBM, Konica, Okidadta Panasonic, QMS, Texas Instruments	call

22. SCANNERS

DEST Personal Scan hand held & automatic document feed capabilities in one desktop unit, 64 levels of halftone gray, w/ Reconize! and Image-In software	795
MICROTEK MSF-300Z flatbed 16.8 mil colors, 256 shades of gray w/ Photostyler (image processor)	1150
PLUSTEK ScanPlus sheet-fed, comes with Calera Wordscan & Picture Publisher Plus	
8 bit output gray	695
16.8 mil colors, 8 bit output gray	895
Hand scanners	see Logitech in section #18

23. SOFTWARE

ADOBE

Complete Type Library	call
Illustrator for Mac / Windows 3.0	335/285
Plus Pack for Mac / Windows 3.0	119
Photoshop for Mac	555
Postscript Cartridge for HP II	299
Streamline for Windows 3.0	225
Type Align for Mac / Windows 3.0	65
Type Cartridge 1: Display Faces	215
Type Cartridge 2: Best Sellers	225
Type Manager for Mac / Windows 3.0	59
Type Set 1/2/3 for Mac / Win 3.0	75/75/105

MICROSOFT

DOS 3.3 / 4.01	65/49
DOS 5.0 (new)	65
DOS 4.01 w/ Windows 3.0	119
Entertainment Pack for Windows 3.0	35
Excel for Windows 3.0 / Mac	299
Flight Simulator	39
Maxx Control Yoke / Pedals (IBM)	57/39
Maxx Instrument Flight Training	66
Learning DOS	35
Microsoft C 6.0	309
Microsoft C Compiler & software dev. kit	465
Mouse w/ Windows 3.0	157
Office 1.6(Excel, Word, Power Point, Mail)	455
Office for Mac	515
OS/2 Presentation Manager Tool Kit 1.21	309
PC Mail Server for DOS & Windows	435
Power Point for Windows / Mac	279/259
Productivity Pack for Windows	38
Project Management 4.0	309
Project for Windows 1.0	425
Quick Basic 4.5	62
Quick C Compiler w/ Quick Assembler	125
Software Development Kit 3.0	309
Source Profiler	55
Visual Basic	129
Windows 3.0	75
Windows 3 Device Drive Tool Kit	305
Word 5.5/ Word for Windows/ Mac	207/299/255
Works 2.0/ Mac	99/199

VENTURA SOFTWARE

Educational administrative, student, faculty and institutions special	call for details
Ventura Publisher 3.0 Gold Series DOS / Windows / Mac	199
Formbase 1.1	199

WORDPERFECT

$100 rebate for student / faculty members	
Free Licenses for schools	call for details
DataPerfect / DrawPerfect	260/255
Figure Library (Bus/Edu/Fig/Hol/Lei)	79 each
LetterPerfect / PlanPerfect	125/235
WordPerfect 5.1 for DOS	239
WordPerfect 2.01 for Mac	244
WordPerfect Executive / Office	145/95

OTHERS

After Dark (screen saver)	35
Automap (road atlas)	55
Borland C++ Profession for Windows	299
Object Vision for Windows	99
Paradox 3.5	463
Quattro Pro 3.0	295
Sidekick 2.0	59
Turbo C++ (Dos Version)	95
Turbo Debugger & Tools 2.0	105
Turbo Pascal for Windwos	159
Turbo Pascal Professional 6.0	199
Central Point	
Anti-virus / Backup 6.0	69/50
PC Tools 7.0 w/ Anti-virus	109
Corel Draw 2.0	349
Correct Grammer	55
Davidson Education	
Algebra/ Read/ SAT/ Spelling	30 & under
dBASE IV 1.1	445
Definition Plus! (American Heritage Dict.)	60
Dvorak on Typing (learning)	36
Fastback Plus 2.1	112
File Director	95
Geoworks Ensemble	129
Grammatik IV for DOS / Windows	57
hDC Windows Express	55
HP New Wave 3.0	109
Hardvard Graphics 3.0	395
Individual Professor Windows	32
Individual Training for WordPerfect	39
Intermission for Win (screen saver)	35
Labels Unlimited 3.0	57
LapLink Rel 3	89
Lotus 1-2-3 Rel 3.1 for Windows	395
MacPrint	85
More Fonts	79
Multimate 4.0	238
Norton Commander 3.0	84
Norton Utility 6.0	112
PFS: First Choice (w/ Prodigy start-up kit)	79
Pacioli 2000	24
PageMaker for Windows 4.0	469
Personal Lawyer/ Lifestyles	55
Pro-scan (virus identifier & remover)	55
Quarterdeck DesqView 286/386 v2.3	79/125
Qemm 386 v5.1 /Manifest /Qram	64/45/45
Quicken for IBM/Mac	39/49
QuickPay (payroll)	39
Software Source (Public Domain)	3
Sound Blaster	145
CMS Chip / Speaker / MIDI kit	29/29/59
SpinRite II	60
Stacker Data Compression	88
Ventura Publisher Gold for Windows	485
XTree Gold 2.0	95

24. TAPE BACKUP

AT & T

40MB for XT,AT	$169

COLORADO

DJ-10 (40,60,120MB)	245
DJ-20 (250MB)	315
AB-10 Controller for DJ-10	75
FC-10 Controller	95
CK-17 Cable	20/9
KE-09 Ext kit w/o controller	75

EVEREX (with software, cassette/cartridge)

60MB (DC600A)/ Ext	645/765
250MB (DC6250)/ Ext	757/865
60MB-PS/2 (DC600A)	704
60MB AT Floppy w/o media	225
All SIZES OF CASSETTE	visit us

25. VGA CARDS

All VGA cards come 1024x768
except as stated

Oak067 Super VGA 256K/512K	$69/84
ATI	
Wonder XL series w/ mouse, 1MB, Hi-color	245
8514 Ultra Plus 512K	485
DIAMOND Speedstar Plus 1MB	199
DTK Monographic w/ Printer	32
EVEREX	
EGA Card	59
Viewpoint Standard (800x600)	75
Viewpoint NI 256K/512K	129/149
VRAM (1MB DRAM)	235
GENOA	
6300 256K/ 6400 512K	95/115
6400A 512K	169
HERCULES	
Graphics Station 1MB / 3MB	625/899
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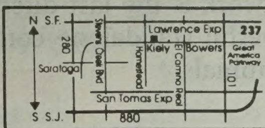

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Dvorak's 14 Postulates of Computing

BY JOHN C. DVORAK

An accurate prediction is usually inside information in the guise of a prognostication.

◆ ◆ ◆

Give away the cameras and make millions on the film. Give away the razors and make millions on the blades. Give away the computers and make millions on, uh, something or other.

DVORAK'S LAST COLUMN

◆ ◆ ◆

Progress only takes place when technology makes a break with the past.

◆ ◆ ◆

RISC Not, Want Not.

◆ ◆ ◆

In all large corporations there is a pervasive fear that someone, somewhere is having fun with a computer on company time.

◆ ◆ ◆

The only thing a network is good for is to poll the system in the morning to see which computers were stolen.

◆ ◆ ◆

The network is the last ditch attempt to turn powerful standalone computers into dumb terminals.

◆ ◆ ◆

Elitism has always been a theme in the world of computing, where the priests of computing find it satisfying to keep people from learning about computers.

◆ ◆ ◆

The modern approach to performance: Design machines to baffle the benchmarks.

◆ ◆ ◆

Text is dead. If it's not dead yet, then it's going to be dead soon.

◆ ◆ ◆

Most programmers burn out at 30 (if not before) and spend useless years talking about how they want to supervise other programmers.

◆ ◆ ◆

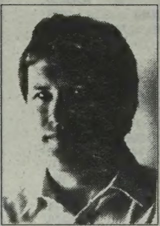
The question that finally comes to mind when you hear about this groupware nonsense is: "Whatever happened to job enrichment?"

◆ ◆ ◆

Once the tools of technology fall into the hands of the people, it results in an instant resentment towards the old priesthood. It's like having a chainsaw in a forest where before all you had was a stone axe. You now hate the guys who had the chainsaw all along!

◆ ◆ ◆

DOS may already be dead. But it seems like there's been a long wait for the coroner. ■



© 1991 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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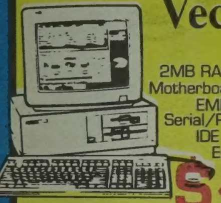

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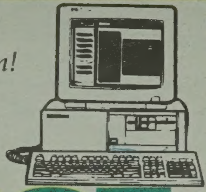

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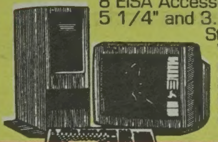

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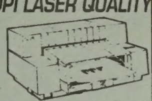

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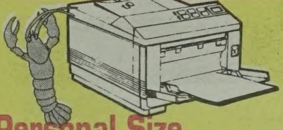

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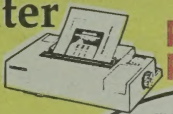

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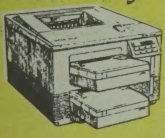

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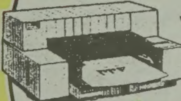

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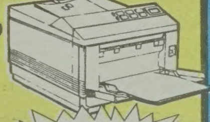

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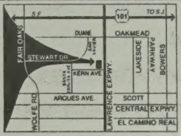
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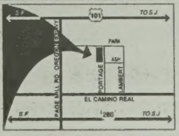
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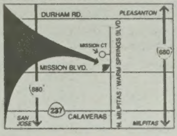
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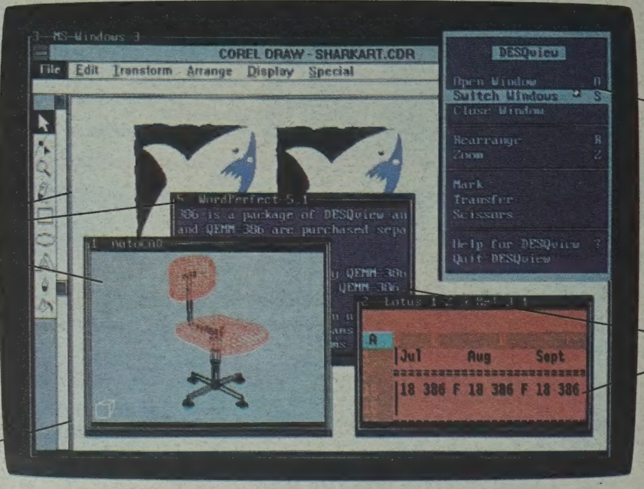
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